

STATE OF COLORADO

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Colorado Department
of Public Health
and Environment

NOTICE OF FINAL ADOPTION

PURSUANT to the provisions of sections **24-4-103(5)** and **24-4-103(1 I)**, C.R.S.

NOTICE IS HEREBY GIVEN that the Colorado Water Quality Control Commission, after a public rulemaking hearing complying with the provisions of 24-4-103 and **25-8-401(1)**, C.R.S., amended on August 14, 2000, pursuant to 25-8-202(1)(a), (b) (2); **25-8-203**; X-8-204; **25-8-209** and 25-8-402, C.R.S., and Section 21.3 of the "Procedural Rules" the regulation entitled:

"The Basic Standards and Methodologies for Surface Water", Regulation **#31**
(5 CCR 1002-31)

Providing for amendments to the regulation regarding issues raised in the proposals attached to the notice dated March 28, 2000, except for issues related to mixing zones. For the issues regarding mixing zones, the hearing record remains open, with further consideration of these issues by the Commission scheduled for October 10, 2000.

Also, pursuant to 24-4-103(8)(b), C.R.S., this amendment was submitted to the Attorney General for review and was found to be within the authority of the Water Quality Control Commission, and further that there are no apparent constitutional deficiencies in its form or substance. Furthermore, in adopting this amendment the Commission also adopted a general Statement of Basis, Specific Statutory Authority, and Purpose in compliance with **24-4-103(4)**, C.R.S.

This action will be submitted to the Office of Legislative Legal Services within twenty (20) days after the date of the Attorney General's Opinion, pursuant to 24-4-103(8)(d), C.R.S., and to the Secretary of State in time for September, 2000 publication in the Colorado Register pursuant to **24-4-103(5)** and (II)(d), C.R.S., and will become effective December 22, 2000

A copy of the amended regulation is attached and made a part of this notice.*

Dated this 29th day of August, 2000 at Denver, Colorado.

WATER QUALITY CONTROL COMMISSION

Diana Glaser, Program Assistant

*A copy of this regulation
is available at a charge of \$5.00
pursuant to **24-4-103(9)**, C.R.S.

REGULATION NO. 31
THE BASIC STANDARDS AND METHODOLOGIES FOR SURFACE WATER

31.1 AUTHORITY AND SCOPE

This regulation is promulgated pursuant to 25-8-101 et seq., and in particular, 25-8-203 and 25-8-204, C.R.S. It provides basic standards, an antidegradation rule and implementation process, and a system: for classifying state surface waters; for assigning water quality standards; for granting temporary modifications and for periodic review of the classifications and standards.

31.2 PURPOSE

This regulation establishing basic standards and an antidegradation rule and implementation process and establishing a system for classifying state surface waters, for assigning standards, and for granting temporary modifications (hereinafter referred to as "Regulation") is the foundation for the classification of the state surface waters of Colorado, as prescribed by the Colorado Water Quality Control Act.

It is intended to implement the state Act by maintaining and improving the quality of the state surface waters. This regulation is based on the best available knowledge to insure the suitability of Colorado's waters for beneficial uses including public water supplies, domestic, agricultural, industrial and recreational uses, and the protection and propagation of terrestrial and aquatic life.

It is further intended to be consistent with the 1983 and 1985 goals and objectives of the federal Act. This regulation shall be constructed in a manner consistent with these purposes and shall be considered part of the implementation of the 1983 and 1985 goals and objectives.

31.3 INTRODUCTION

This regulation presents a classification system which establishes beneficial use categories together with basic standards (section 31.1 I), an antidegradation rule (section 31.8), and numeric tables which define the conditions generally necessary to maintain and attain such beneficial uses. In addition, it establishes procedures for classifying the waters of the state, for assigning water quality standards, and for continued review of the classifications and standards.

The classifications set forth in section 31.13 will be assigned by applying the system to specific state surface waters, in accordance with proper procedures, including public hearings. The basic standards and the antidegradation rule will apply to all state surface waters at the effective date of this regulation. Whenever a specific stream segment or body of water receives a classification for one or more of the uses, additional numeric standards may be assigned. When appropriate, achieving water quality standards through innovative solutions or management approaches may be implemented through control regulations. All classified uses will be protected. This does not mean that any entity has the right to rely on the presence of specific pollutants in the stream even though those pollutants may be utilized by the entity.

Water quality standards, temporary modifications of numeric standards, and classifications shall be reviewed at least once every three (3) years and revised where appropriate. No provisions of this regulation shall be interpreted so as to supercede, abrogate, or impair rights to divert water and apply water to beneficial uses.

31.4 DELETED

31.5 DEFINITIONS

See the Colorado Water Quality Control Act, section 25-8-101 et seq., C.R.S. , and the codified water quality regulations additional definitions.

- (1) "ACT" means the Colorado Water Quality Control Act, section 25-8-101 et seq., C.R.S..
- (2) "ACUTE STANDARD" means the level not to be exceeded by the concentration in a single sample or calculated as an average of all samples collected during a one-day period. As used in tables II and III, acute represents one-half of the 96-hour LC-50 that protects 95 percent of the genera in a water body from lethal effects. The acute standard is implemented in combination with a selected duration and frequency of recurrence (section 31.9(1)).
- (3) "ANTIDEGRADATION RULE" means the rule established in section 31.8.
- (4) "BASIC STANDARDS" means those standards as established in section 31.1 1
- (5) "BENEFICIAL USES" means those uses of state surface waters to be protected such as those identified in the classification system.
- (6) "BMP" (Best Management Practices) means a practice or a combination of practices that is determined by a governmental agency after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with quality goals.
- (7) "CHRONIC STANDARD" means the level not to be exceeded by the concentration for either a single representative sample or calculated as an average of all samples collected during a thirty-day period. As used in tables II and III, chronic represents the level that protects 90 to 95 percent of the genera from chronic toxic effects from un-ionized ammonia and 95 percent of the genera from chronic toxic effects from metals. Chronic toxic effects include, but are not limited to, demonstrable abnormalities and adverse effects on survival, growth, or reproduction. The chronic standard is implemented in combination with a selected duration and frequency of recurrence (section 31.9(1)).
- (8) "COLD WATER BIOTA" means aquatic life, including trout, normally found in waters where the summer temperature does not often exceed 20°C.
- (9) "COMMISSION" means the Colorado Water Quality Control Commission.

- (10) "COMPENSATORY WETLANDS" means wetlands developed for mitigation of adverse impacts to other wetlands (e.g. wetlands developed pursuant to section 404 of the federal Act).
- (11) "CONSTRUCTED WETLANDS" means those wetlands intentionally designed, constructed and operated for the primary purpose of wastewater or stormwater treatment or environmental remediation provided under CERCLA, RCRA, or section 319 of the federal Act, if (a) such wetlands are constructed on non wetland sites that do not contain surface waters of the state, or (b) such wetlands are constructed on previously existing wetland sites, to the extent that approval or authorization under section 404 of the federal Act has been granted for such construction or it is demonstrated that such approval or authorization is not, or was not, required. This term includes, but is not limited to, constructed swales, ditches, culverts, infiltration devices, catch basins, and sedimentation basins that are part of a wastewater or stormwater treatment system or a system for environmental remediation mandated under CERCLA or RCRA. Compensatory wetlands shall not be considered constructed wetlands. Constructed wetlands are not state waters.
- (12) "CREATED WETLANDS" means those wetlands other than compensatory wetlands created in areas which would not be wetlands in the absence of human modifications to the environment. Created wetlands include, but are not limited to wetlands created inadvertently by human activities such as mining, channelization of highway runoff, irrigation, and leakage from man-made water conveyance or storage facilities. Wetlands resulting from hydrologic modifications such as on-channel reservoirs or on-channel diversion structures that expand or extend the reach of adjacent classified state waters are not considered created wetlands.
- (13) "DISSOLVED METALS" means that portion of a water and suspended sediment sample which passed through a 0.40 or 0.45 μm (Micron) membrane filter. Determinations of "Dissolved" constituents are made using the filtrate. This may include some very small (Colloidal) suspended particles which passed through the membrane filter as well as the amount of substance present in true chemical solution.
- (14) "DIVISION" means the Division of Administration of the Colorado Department of Public Health and Environment of which the Water Quality Control Division is a part.
- (15) "FEDERAL ACT" means the Clean Water Act, U.S.C. Section 1251 et seq., as amended.
- (16) "FLOODPLAIN" means any flat or nearly flat lowland that borders a stream, a lake, or an on-channel reservoir and that may be covered by its waters at flood or high stage as described by the parameter of the probable maximum flood or probable maximum high stage.
- (17) "LC-50" means the concentration of a parameter that is lethal to 50% of the test organisms within a defined time period.

- (18) "MIXING ZONE" means that area of a water body designated on a case-by-case basis by the Division which is contiguous to a point source and in which certain standards may not apply.
- (19) "NUMERIC VALUE" means the measured concentration of a parameter.
- (20) "PARAMETER " means the chemical constituents or other characteristics of the water such as algae, fecal coliform, total dissolved solids, dissolved oxygen, or the magnitude of radioactivity levels, temperature, pH, and turbidity, or other relevant characteristics.
- (21) "PERMIT" means a National Pollutant Discharge Elimination System (NPDES) permit or other state water quality permit.
- (22) "POTENTIALLY DISSOLVED METALS" means that portion of a constituent measured from the filtrate of a water and suspended sediment sample that was first treated with nitric acid to a pH of less than 2.0 and let stand for 8 to 96 hours prior to sample filtration using a 0.4 or 0.45 μm membrane filter. Note the "Potentially Dissolved" method cannot be used where nitric acid will interfere with the analytical procedure used for the constituent measured.
- (23) "REGIONAL WASTEWATER MANAGEMENT PLAN" means a water quality planning document prepared pursuant to section 208 of the federal Act, sometimes referred to as "208 Plans" or "Water Quality Management Plans."
- (24) "SALINITY" means total dissolved solids (TDS).
- (25) "STANDARD" means a narrative and/or numeric restriction established by the Commission applied to state surface waters to protect one or more beneficial uses of such waters. Whenever only numeric or only narrative standards are intended, the wording shall specifically designate which is intended.
- (26) "STATE WATERS" means any and all surface and subsurface waters which are contained in or flow in or through this state, but does not include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.
- (27) "TABLES" means tables I, II, and III, appended to this regulation, which set forth accepted levels for various parameters which will generally protect the beneficial uses of state surface waters.
- (28) "TOTAL RECOVERABLE METALS" means that portion of a water and suspended sediment sample measured by the total recoverable analytical procedure described in "Methods for Chemical Analysis of Water and Wastes," U.S. Environmental Protection Agency, March, 1979, or its equivalent.
- (29) "TRIBUTARY WETLANDS" means wetlands that are the head waters of surface waters or wetlands within the floodplain that are hydrologically connected to surface waters via either surface or ground water flows. The hydrologic connection may be intermittent or

seasonal, but must be of sufficient extent and duration to normally reoccur annually. Tributary wetlands do not include constructed or created wetlands.

- (30) "USE ATTAINABILITY ANALYSIS" means an assessment of the factors affecting the attainment of aquatic life uses or other beneficial uses, which may include physical, chemical, biological, and economic factors.
- (31) "USES" see Beneficial Uses.
- (32) "WARM WATER BIOTA" means aquatic life normally found in waters where the summer temperature frequently exceeds 200 C.
- (33) "WATER QUALITY-BASED DESIGNATION" means a designation adopted by the Commission for specific state surface waters pursuant to section 31.8(2), to identify which level of water quality protection such waters will receive under the Antidegradation Rule in section 31.8(1). Such designations are adopted pursuant to the Commission's authority to classify state waters, as set forth in section 25-8-203, C.R.S., and the procedural requirements for classifying state waters shall be applied in adopting such designations.
- (34) "WATER EFFECT RATIO" means a ratio that is computed as a specific pollutant's acute or chronic toxicity value measured in water from the site covered by a standard, divided by the respective acute or chronic toxicity value in laboratory dilution water, as more specifically defined in 40 C.F.R. subsection 131.36(c) (1993).
- (35) "WATER QUALITY STANDARD" see Standard
- (36) "WETLANDS" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in, saturated soil conditions.

31.6 PROCESS FOR ASSIGNING CLASSIFICATIONS

The Commission is responsible for classifying state waters as set forth in sections 25-8-202(1)(a), and 25-8-203, C.R.S. All state surface waters may be classified in one or more of the use classifications as set forth in section 31.13.

Waters shall be classified for the present beneficial uses of the water, or the beneficial uses that may be reasonably expected in the future for which the water is suitable in its present condition or the beneficial uses for which it is to become suitable as a goal. The assignment of one or more classifications to a portion of the state surface waters is based upon its current suitability for the designated uses or goals for future uses. Where the use classification is based upon a future use for which the waters are to become suitable, the numeric standards assigned to such waters to protect the use classification may require a temporary modification to the underlying numeric standard and an implementation plan for eliminating the temporary modification.

When assigning classifications to waters of a given area, the Commission will consider the goals, objectives, and requirements of federal and state statutes and regulations,

recommendations of the regional wastewater management plans (208 plans); 208 plans of adjoining regions; testimony, comments, and documents presented at public hearings on the issue; and other relevant information,

(1) Considerations in Assigning Classifications

The following will serve to guide the Commission in assigning classifications:

- (a) Classifications should be directed towards the realization of the water quality goals as set forth in the federal and state Acts.
- (b) It is state law and policy to prevent any water quality degradation that can interfere with present uses.
- (c) Upstream classifications must not jeopardize downstream classifications or actual uses.
- (d) Classification must protect all current classified and actual uses, unless it is determined after a public hearing that downgrading is justifiable. (See section 31.6(2)(b)).
- (e) Classifications should be for the highest water quality attainable. Attainability is to be judged by whether or not the use classification can be attained in approximately twenty (20) years by any recognized control techniques that are environmentally, economically, and socially acceptable as determined by the Commission after public hearings. At a minimum, uses are deemed attainable if they can be achieved by the imposition of effluent limits required under the federal Act for point sources and cost-effective and reasonable best management practices for nonpoint source control, in accordance with duly adopted regulations.
- (f) Relevant physical, chemical and biological characteristics are valid water quality concerns that may be taken into account in the classification process.

Upgrading and Downgrading

(a) Upgrading

The state shall maintain those water use classifications which are currently being attained. Where existing classifications specify fewer designated water uses than those which are presently being attained, the Commission shall upgrade the designated classification to reflect the uses actually being attained.

(b) Downgrading

At a minimum, the state shall maintain those water use classifications **currently** designated, unless it can be demonstrated that the existing classification is not presently being attained and cannot be attained within a twenty (20) year time period. Nonattainability must be due to at least one or more of the following conditions:

- (i) Naturally occurring pollutant concentrations prevent the attainment of the use within a twenty (20) year period: or
- (ii) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or
- (iii) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied within a twenty (20) year period or would cause more environmental damage to correct than to leave in place; or
- (iv) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or
- (v) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
- (vi) Controls more stringent than those required by section 301(b) and 306 of the federal Act would result in substantial and widespread economic and social impact; or
- (vii) Agricultural practices which are considered satisfactory for the locality. It must be demonstrated that these agricultural practices preclude the present classifications. Satisfactory practices will be approved by the Commission based on evidence from **areawide** 208 agencies, soil conservation districts, agricultural extension services and other public input.

An additional reason for revising classifications will be where previous classifications had no basis in fact and did not reflect actual beneficial uses. Such corrections to classifications shall not be considered downgrading. See e.g., section 31.6(3)(b) regarding hearings pursuant to section **25-8-207**, C.R.S.

(3) Procedures for Assigning or Changing Classifications

(a) General

- (i) Assigning or changing a classification shall be accomplished by rule after a rulemaking hearing. Rulemaking hearings to consider a classification will be conducted according to the Procedural Regulations of the Commission. At a minimum, the Commission shall review classifications once every three years. Any interested person shall have the right to petition the Commission to assign or change a stream classification. Such petition shall be open to the public inspection. Except as provided below, pursuant to section 24-4-103(7), C.R.S., action on such petition shall be within the discretion of the Commission. The Commission may also decide to consider a classification on its own motion.
- (ii) In making a decision regarding a proposed classification, the Commission will consider the principles set forth in this regulation. The decision will be made by the Commission applying its expertise after analyzing the evidence presented at public hearing and considering the requirements of law, its own policies, and all other matters deemed pertinent in the discretion of the Commission.
- (iii) Where the classifications of a water body segment do not include an aquatic life classification or recreation class 1, as a part of the triennial review of the segment the Division shall review any prior use attainability analyses or other basis for omission of one or more of the above classified uses. If the justification for the omission is determined not to be consistent with accepted use attainability procedures, the Division or other party, if any, advocating the omission shall perform a supplemental analysis to provide a basis for a Commission determination whether such uses are attainable. When the Commission wishes to remove an aquatic life class 1 or 2 or recreation class 1 classification, the Division shall conduct or the Commission shall require the petitioner to conduct, in consultation with the Division, a use attainability analysis to justify the proposed change.

(b) Section 25-8-207 Reviews

- (i) Procedural requirements relating to reviews pursuant to section 25-8-207, C.R.S., are set forth in the Procedural Regulations, Regulation No. 21, 5 CCR 1002-21.
- (ii) The Commission shall, upon petition, or upon its own motion, review existing stream standards or use classifications pursuant to the criteria listed in subsection (iii) below. The Commission may revise stream standards and classifications pursuant to the criteria listed in subsection (iv) below.
- (iii) The Commission shall make a finding of inconsistency, taking into account sections 25-8-102 and 25-8-104, C.R.S., if the existing use classification(s) or water quality standards:

(A) are more stringent than is necessary to protect fish life, shellfish life, and wildlife in water body segments which are reasonably capable of sustaining such fish life, shellfish life, and wildlife from the standpoint of physical, streambed, flow, habitat, climatic and other pertinent characteristics. Where such characteristics are adequate to support the use, use classifications shall be adopted or retained to protect aquatic life which constitutes a significant source of food supply for the fish, shellfish, or wildlife that is the basis for the classified use: or

(B) were adopted based upon material assumptions that were in error or no longer apply.

(iv) As a result of any hearing held pursuant to this section, the Commission may revise or change use classifications or water quality standard(s) in accordance with the criteria contained in the Act or whenever necessary to insure compliance with the other provisions of this regulation.

(v) Where the Commission determines that an inconsistency exists, it shall declare the inconsistent classification or standards void ab initio and shall simultaneously establish appropriate classifications or standards.

(4) Segmentation Criteria

(a) For purposes of adopting site-specific classifications and water quality standards, the streams and other surface water bodies shall be identified according to river basin and/or subbasin and specific water segments.

(b) Segments may constitute a specified stretch of a river mainstem, a specific tributary, a specific lake or reservoir, or a generally defined grouping of waters within the basin (e.g., a specific mainstem segment and all tributaries flowing into that mainstem segment).

(c) Segments shall generally be delineated according to the points at which the use, physical characteristics or water quality characteristics of a watercourse are determined to change significantly enough to require a change in use classifications and/or water quality standards. In many cases, such transition points can be specifically identified from available water quality data. In other cases, however, the delineation of segments shall be based upon best judgments of where instream changes in uses, physical characteristics or water quality occur, based upon upstream and downstream data.

31.7 PROCESS FOR ASSIGNING STANDARDS AND GRANTING, EXTENDING, OR REMOVING TEMPORARY MODIFICATIONS

(1) Assigning Standards

The Commission is responsible for promulgating water quality standards as set forth in section 25-8-204, C.R.S. Standards may be narrative and/or numeric and include the following:

(a) Basic Standards

The basic standards in section 31 .1 1 shall apply to all state surface waters at the effective date of the regulation,

(b) Numeric Standards

A numeric standard may be assigned by the Commission either to apply on a statewide basis or to specific state surface waters. A numeric standard will be assigned by the Commission when it is presented with evidence that a particular numeric level for a parameter is the suitable limit for protecting the classified use. A numeric standard consists of a numeric level and may include a description as to how that numeric level is to be measured. Numeric standards will include appropriate averaging periods and appropriate frequencies of allowed excursions. A numeric standard may be exceeded due to temporary natural conditions such as unusual precipitation patterns, spring runoff or drought. Such uncontrollable conditions are not cause for changing the numeric standard.

A temporary modification of a numeric standard may be granted by the Commission if the numeric standard is not being met at the present time, but such numeric standard is necessary to allow the full attainment of the classified use.

Numeric standards will be assigned based on the evidence presented at the classification and numeric-standard-setting hearings. Numeric standards may not necessarily be assigned for all constituents listed in the tables. In making this determination, the Commission will consider the likelihood of such constituents being present in the waters in question naturally or due to point or **nonpoint** sources, and shall consider the significance of the constituents with respect to protection of the classified uses. Entities having specific water quality data for the waters being classified, such as 208 agencies, local municipalities and industries, and citizens' groups, the Water Quality Control Division, state and federal agencies, environmental organizations, and other interested persons are encouraged to present such information.

The Commission may use any of the following approaches to establish site-specific numeric standards, as it determines appropriate with respect to specific state surface waters. Existing site-specific standards shall remain in effect until superceded by revised standards promulgated pursuant to this section:

(i) Table Value Standards

The Commission may apply the numeric levels set forth in tables I, II, and III as site-specific standards when those levels are determined to be appropriate to protect the applicable classified uses, and the available site-specific information does not indicate that one of the following alternative approaches to numeric standards would be more appropriate. Acute and chronic standards may be adopted. Numeric standards may not necessarily be assigned for all constituents listed in the tables. Standards for metals may be established by site-specific adoption of the hardness-dependent equations in table III, instead of single-value numeric standards. The numeric levels for various parameters in tables I, II, and III, are levels determined by the Commission after careful analysis of all available information and are generally considered to protect the beneficial use classifications. They are intended to guide the Commission and others at the use classification and numeric-standard-setting hearings.

(ii) Ambient Quality-Based Standards

For state surface waters where the natural or irreversible man-induced ambient water quality levels are higher than specific numeric levels contained in tables I, II, and III, but are determined adequate to protect classified uses, the Commission may adopt site-specific chronic standards equal to the 85th percentile of the available representative data. Acute standards shall be based on table values or site-specific-criteria-based standards, and in no case may an ambient chronic standard be more lenient than the acute standard.

(iii) Site-Specific-Criteria-Based Standards

For state surface waters where an indicator species procedure (water effects ratio), recalculation procedure, use attainability analysis or other site-specific analysis has been completed in accordance with section 31,16(2)(b), or in accordance with comparable procedures deemed acceptable by the Commission, the Commission may adopt site-specific acute or chronic standards as determined to be appropriate by the site-specific study results. For segments assigned aquatic life classifications, where factors other than water quality substantially limit the diversity and abundance of species present, the Commission may adopt site-specific acute or chronic standards as determined to be appropriate based upon available information regarding the waters and the habitat. Recurrence intervals for site-specific-criteria-based standards may be determined on a site-specific basis.

Site-specific-criteria-based standards and ambient quality-based standards for metals shall be based on dissolved metals whenever the Commission determines that the evidence presented is adequate to justify such standards. Site-specific standards for metals in effect prior to July 31, 1988 were generally based on total recoverable metals. Those standards shall remain in effect until superceded by revised standards promulgated pursuant to this section,

(iv) Standards For Surface Waters In Wetlands

(A) Tributary wetlands to which the interim classifications referenced in section 31.13(1)(e)(iv) apply, shall be subject to the following interim standard:

(1) Until such time as the Commission adopts site-specific standards for the tributary wetland, water quality in the wetland shall be maintained for each parameter at whichever of the following levels is less restrictive:

(a) ambient quality, or

(b) that quality which meets the numeric standards (except for numeric standards for pH, dissolved oxygen, and any standard established for the protection of a domestic water supply use) of the tributaries of the surface water segment to which the wetland is most directly hydrologically connected. Where the applicable numeric standard is based on section 31.16, table III, of this regulation, the numeric standard applicable to the wetland may be implemented taking into account the water effect ratio of the pollutant.

(2) Ambient quality shall be determined in accordance with section 31.7(1)(b)(ii) and shall take into account the location, sampling date, and quality of all available data. Ambient quality shall be determined as of the time the first regulatory action is undertaken which requires the identification of water quality standards for wetlands. If available information is not adequate to otherwise determine or estimate ambient quality, the interim standard set forth in section 31.7(1) (b) (iv) (A) (1) (b) shall apply.

(B) Wetlands for which the Commission has adopted a site-specific "wetlands" classification described in section 31.13(l)(e)(v), shall be subject to numeric standards and designations adopted by the Commission. The Commission shall adopt any numeric standards and designations determined to be appropriate in view of the functions and values to be protected for the wetlands in question.

(C) Created wetlands, shall be subject only to the narrative standards set forth in section 31.11, unless the Commission has adopted the wetlands classification and appropriate numeric standards. All created wetlands will have a use-protected designation unless determined otherwise as a result of a site-specific hearing.

(D) Compensatory wetlands shall be subject to the standards of the segment in which they are located, unless the Commission adopts a wetlands classification and appropriate numeric standards.

(E) All other wetlands which are state waters shall be subject only to the narrative standards set forth in section 31.11, unless the Commission has adopted the wetlands classification and appropriate numeric standards.

(F) The issuance and use of site-specific or individual permits under section 404 of the Clean Water Act, is not precluded by the provisions of sections 31.7, 31.11 or 31.13, except as provided in the 401 certification process under section 25-8-302, C.R.S.

(G) Wetlands water quality standards and classifications shall not be interpreted or applied in a manner that is inconsistent with sections 25-8-102(5) and 25-8-104, C.R.S.

(c) Site-Specific Narrative Standards

- (i) Narrative standards may be assigned by the Commission to apply on a specific state surface water where numeric criteria are not required under federal law. Narrative standards will be assigned based on the evidence presented at the classification and numeric-standards-setting hearings, and must protect the classified uses.
- (ii) The Commission may adopt a site-specific narrative standard where water quality currently is degraded as a result of historical mining activities and improvement is likely within 20 years, if it determines that such a standard is the most appropriate option to protect existing uses and to promote water quality improvement efforts for the segment(s) in question due to uncertainty regarding what water quality is attainable. Unless the Commission determines that a different approach is appropriate on a site-specific basis, it shall use a statement that the standard(s) for the pollutant(s) in question shall be the chemical concentrations, biological conditions, and/or physical conditions identified by a structured scientific use attainability analysis, or table value standards, if the use attainability analysis is not completed and submitted by a specified date and approved by the Commission. Generally, a numerical temporary modification based on existing ambient quality will also be adopted for the segment(s) and pollutant(s) in question.

(2) Considerations in Assigning Standards

In promulgating water quality standards, the Commission shall consider:

- (a) The need for standards which regulate specified pollutants;
- (b) Such information as may be available to the Commission as to the degree to which any particular type of pollutant is subject to treatment; the availability, practicality, and technical and economic feasibility of treatment techniques; the impact of treatment requirements upon water quantity; and the extent to which the discharge to be controlled is significant;
- (c) The continuous, intermittent, or seasonal nature of the pollutant to be controlled;

- (d) The existing extent of pollution or **the** maximum extent of **pollution** to be tolerated as a goal;
- (e) Whether the pollutant arises from natural sources;
- (f) Beneficial uses of water; and
- (g) Such information as may be available to **the Commission** regarding the risk associated with the pollutants including its persistence, degradability, the **usual** or potential presence of the affected organism in any waters, the importance of the affected organisms, and the nature and extent of the effect of the pollutant on such organisms.

(3) Granting, Extending, and Removing **Temporary** Modifications to Numeric Standards

Where a numeric standard is not being met at the present time, or there is significant uncertainty regarding the appropriate long-term underlying standard, a temporary modification to the numeric standard may be granted by the Commission. The presence of a modification will be indicated by adding the words "temporarily modified" to the underlying numeric standard. A temporary modification may be granted to an entire stream or water body or to any portion thereof. It may be granted at the time a numeric standard is assigned or at any later time. When the temporary modification expires or is removed by the Commission, the underlying numeric standard will be in full effect. In every case, the modification to the numeric standard shall be temporary. All temporary modifications must be re-examined not less than once every three (3) years.

In general, requests for a temporary modification are preferred over a more permanent downgrading of a present classification where it appears that the conditions causing the lower water quality might be temporary within a twenty (20) year time frame. Retaining a classification higher than the present usage will serve as a reminder that the conditions are correctable and may increase the priority for funding to attain the classified use.

(a) Conditions for Granting a Temporary Modification

The Commission may grant a temporary modification if one of the following conditions is shown to exist:

- (i) where the standard is not being met because of human-induced conditions deemed correctable within a twenty (20) year period, such as:
 - **nonpoint** source pollution which cannot be currently controlled using best management practices (BMP) or point source pollution which cannot be controlled using techniques required by the state and federal Acts but where adequate strategies may become feasible;
 - existing dams or other hydrological modifications that may be removed or operated in such a manner as to satisfy the standards:

- deposition of **instream** toxicants due to past human point or **nonpoint** source activities which could be removed by natural processes or by human efforts;
 - other conditions which are correctable but for which time will be required to implement measures to achieve compliance with the standard.
- (ii) where the standards cannot be met because the current imposition of the necessary controls or corrective measures would result in a substantial and widespread economic and social impact. The application of this condition requires a judgment by the Commission of what constitutes a substantial and widespread impact warranting modification.
- (iii) where there is significant uncertainty regarding the appropriate long-term underlying standard -- e.g. due to the need for additional information regarding the extent to which existing quality is the result of natural or irreversible **human-**induced conditions or regarding the level of water quality necessary to protect current and/or future uses -- and the adoption of a temporary modification recognizes current conditions while providing an opportunity to remove the uncertainty.

(b) Eliminating the Need for A Temporary Modification

Regional wastewater management plans (208 plans) and plan updates, discharge permits, wasteload allocations, planning, design, and construction of new enlarged, or improved facilities, management practices, and other water quality controls and actions shall be geared toward fully attaining the classified use and underlying numeric standard and assist in eliminating the need for the temporary modification. Where a temporary modification is adopted pursuant to subsection **31.7(3)(a)(iii)** above, the Commission may, where appropriate based upon the existence of **a plan** to eliminate the uncertainty that is the basis for the temporary modification, indicate its intent that the temporary modification be used in establishing any applicable control requirements while it is in effect, due to the uncertainty that warranted the adoption of the temporary modification.

(c) Duration of a Temporary Modification

When a temporary modification is granted, the duration of the temporary modification will be set by the Commission. The duration of a temporary modification shall be determined on a case-by-case basis, based upon how soon attainment of the underlying standard is deemed feasible, taking into account the permitting status of any point source discharges to the segment.

In making a decision as to whether a temporary modification should be removed or extended, the Commission will consider whether those individuals utilizing the temporary modification have agreed to an implementation plan for eliminating the need for the temporary modification, whether such individuals have demonstrated due diligence in trying to implement such a plan, the impact on the uses of the stream in the area of the temporary modification and upstream and downstream of that area. and all other relevant factors.

(4) Procedures for Assigning or Changing a Standard or Granting, Removing, or Extending a Temporary Modification

Assigning or changing a standard or granting, removing before its expiration, or extending a temporary modification shall be accomplished by a rule after a rulemaking hearing. The procedures for taking such action shall be the same as the procedures for assigning or changing classifications. See section 31.6(3)(a)(i).

31.8 ANTIDegradation

(1) Antidegradation Rule

- (a) The highest level of water quality protection applies to certain waters that constitute an outstanding state or national resource. These waters, which are those designated outstanding waters pursuant to section 31.8(2)(a), shall be maintained and protected at their existing quality.
- (b) An intermediate level of water quality protection applies to waters that have not been designated outstanding waters or use-protected waters. These waters shall be maintained and protected at their existing quality unless it is determined that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. For these waters, no degradation is allowed unless deemed appropriate following an antidegradation review in accordance with section 31.8(3). Further, all applicable statutory and regulatory requirements for point sources and, if applicable control regulations have been adopted, all cost-effective and reasonable best management practices for nonpoint sources shall be met.
- (c) At a minimum, for all state surface waters existing classified uses and the level of water quality necessary to protect such uses shall be maintained and protected. No further water quality degradation is allowable which would interfere with or become injurious to these uses. The classified uses shall be deemed protected if the narrative and numerical standards are not exceeded.

The antidegradation review requirements in section 31.8(3) are not applicable to waters designated use-protected pursuant to section 31.8(2)(b). For these waters, only the protection specified in this subparagraph applies.

- (d) Water quality designations and reviewable water provisions shall not be utilized in a manner that is contrary to the provisions of sections 25-8-102 and 25-8-104, C.R.S.

(2) Water Quality-Based Designations

Waters which satisfy the criteria in subparagraph (a) below may be designated by the Commission as "outstanding waters". Waters which satisfy the criteria in subparagraph (b) below may be designated "use-protected." Waters not satisfying either set of criteria will remain undesignated, and will be subject to the antidegradation review provisions set forth in section 31.8(3), below.

(a) Outstanding Waters Designation

Waters may be designated outstanding waters where the Commission makes all of the following three determinations:

- (i) The existing quality for each of the following parameters is equal to or better than that specified in tables I, II, and III for the protection of aquatic life class 1, recreation class 1, and (for nitrate) domestic water supply uses:

Table I: dissolved oxygen, pH, fecal coliform, E. coli

Table II: chronic unionized ammonia, nitrate

Table III: chronic cadmium, chronic copper, chronic lead, chronic manganese, chronic selenium, chronic silver, and chronic zinc

The determination of existing quality shall be based on adequate representative data, from samples taken within the segment in question. Data must be available for each of the 12 parameters listed; provided, that if fecal coliform samples from within the segment are infeasible due to its location, and a sanitary survey demonstrates that there are no human sources present that are likely to impact quality in the segment in question, fecal coliform or E. coli data will not be required. "Existing quality" shall be the 85th percentile of the data for unionized ammonia, nitrate, and dissolved metals, the 50th percentile for total recoverable metals, the 15th percentile for dissolved oxygen, the geometric mean for fecal coliform and E. coli, and the range between the 15th and 85th percentiles for pH.

In addition, the foregoing notwithstanding, this test shall not be considered to be met if the Commission determines that, due to the presence of substantial natural or irreversible human-induced pollution for parameters other than those listed above, the quality of the waters in question should not be considered better than necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water.

- (ii) The waters constitute an outstanding natural resource, based on the following:
 - (A) The waters are a significant attribute of a State Gold Medal Trout Fishery, a National Park, National Monument, National Wildlife Refuge, or a designated Wilderness Area, or are part of a designated wild river under the Federal Wild and Scenic Rivers Act; or
 - (B) The Commission determines that the waters have exceptional recreational or ecological significance, and have not been modified by human activities in a manner that substantially detracts from their value as a natural resource.

- (iii) The water requires protection in addition to that provided by the combination of water quality classifications and standards and the protection afforded reviewable water under section 31.8(3).

(b) Use-Protected Designation

These are waters that the Commission has determined do not warrant the special protection provided by the outstanding waters designation or the antidegradation review process.

- (i) Waters shall be designated by the Commission use-protected if any of the criteria below are met, except that the Commission may determine that those waters with exceptional recreational or ecological significance should be undesignated, and deserving of the protection afforded by the antidegradation review provisions of section 31.8(3):

- (A) The use classifications of the waters include aquatic life cold or warm water class 2;
- (B) The existing quality for at least three of the following parameters is worse than that specified in tables I, II and III for the protection of aquatic life class 1, recreation class 1 and (for nitrate) domestic water supply uses:

Table I: dissolved oxygen, pH, fecal coliform or E. coli

Table II: chronic un-ionized ammonia, nitrate

Table III: chronic cadmium, chronic copper, chronic lead, chronic manganese, chronic selenium, chronic silver, and chronic zinc

The determination of existing quality shall be based on adequate representative data, from samples taken within the segment in question. Data must be available for each of the 12 parameters listed; provided, that if fecal coliform or E. coli samples from within the segment are infeasible due to its location, and a sanitary survey demonstrates that there are no human sources present that are likely to impact quality in the segment in question, fecal coliform data will not be required. "Existing quality" shall be the 85th percentile of the data for unionized ammonia, nitrate, and the dissolved metals, the 50th percentile for total recoverable metals, the 15th percentile of such data for dissolved oxygen, the geometric mean of such data for fecal coliform and E. coli, and the range between the 15th and 85th percentiles for pH; or

- (C) The water body is subject to significant existing point source discharges and the quality currently is maintained better than standards only because the treatment achieved by the existing dischargers exceeds requirements of federal and state law and might not be maintained at that level in the future.

- (ii) In addition, waters may be designated use-protected even though none of the preceding criteria apply if the Commission determines that due to the presence of substantial natural or irreversible human-induced pollution for parameters other than those listed in section 31.8(2)(b)(i)(B) the quality of the waters in question should not be considered better than necessary to support aquatic life class 1 and recreation class 1 uses.

(3) Antidegradation Review Process

(a) Applicability

These antidegradation review procedures shall apply to the review of regulated activities with new or increased water quality impacts that may degrade the quality of state surface waters that have not been designated as outstanding waters or ~~use-~~protected waters, including waters previously designated as high quality class 2. These waters are referred to below as "reviewable waters." "Regulated activities" means any activities which require a discharge permit or water quality certification under federal or state law, or which are subject to state control regulations unless the Commission has specified in the control regulation that the antidegradation review process is not applicable. Where possible, the antidegradation review should be coordinated or consolidated with the review processes of other agencies concerning a proposed activity in an effort to minimize costs and delays for such activities.

(b) Division and Commission Roles

For regulated activities, the significance determination set forth in section 31.8(3)(c) and the determination whether degradation is necessary to accommodate important economic or social development in the area in which the waters are located, pursuant to section 31.8(3)(d), shall be made by the Division, subject to a de-novo review by the Commission in an adjudicatory hearing, on the Commission's own motion, pursuant to a petition by any interested person who has submitted written comments during the Division review process, or on the Commission's determination pursuant to section ~~24-4-105(2)~~, C.R.S.

(c) Significance Determination

The initial step in an antidegradation review shall be a determination whether the regulated activity in question is likely to result in significant degradation of reviewable waters, with respect to adopted narrative or numeric standards. The significance determination will be based on the chronic numeric standard and flow for the pollutant of concern except for those pollutants which have only acute numeric standards in which case the acute standard and flow will be used. This significance determination shall be made with respect to the net effect of the new or increased water quality impacts of the proposed regulated activity, taking into account any environmental benefits resulting from the regulated activity and any water quality enhancement or mitigation measures impacting the segment or segments under review, if such measures are incorporated with the proposed

regulated activity. The regulated activity shall be considered not to result in significant degradation, as measured in the reviewable waters segment, if:

- (i) For bioaccumulative toxic pollutants, (i.e., those chemicals for which the bioaccumulation factor (BAF) is equal to or greater than 1000) the new or increased loading from the source under review is less than 10 percent of the existing total load to that portion of the segment impacted by the discharge for critical constituents; provided, that the cumulative impact of increased loadings from all sources shall not exceed 10 percent of the baseline total load established for the portion of the segment impacted by the discharge (the baseline total load shall be determined at the time of the first proposed new or increased water quality impacts to the reviewable waters.); and
- (ii) For all pollutants:
 - (A) The flow rate or volume of a new or increased discharge under review is small enough that it will be diluted by 100 to 1 or more at low flow, as defined in section 31.9, by water in the stream; or
 - (B) The new activity or increased discharge from the source under review will consume, after mixing, less than 15 percent of the baseline available increment, provided that the cumulative increase in concentration from all sources shall not exceed 15 percent of the baseline available increment. The baseline available increment is the increment between low-flow pollutant concentrations and the relevant standards for critical constituents for that portion of the segment impacted by the discharge. The baseline low-flow pollutant concentration shall represent the water quality as of September 30, 2000, and shall be determined at the time of the first proposed ~~new~~ or increased water quality impacts to the reviewable waters after that date; or
 - (C) The regulated activity will result in only temporary or short term changes in water quality. This exception shall not apply where ~~long-~~ term operation of the regulated activity will result in an adverse change in water quality.

For the purposes of this subsection, the phrase “portion of the segment impacted by the discharge” means the portion of the stream from the discharge point to the first major tributary inflow, or as determined by the Division based on site-specific information at the time of the analysis.

(d) Necessity of Degradation Determination

If a determination has been made in accordance with section 31.8(3)(c) that a proposed regulated activity is likely to result in significant degradation of reviewable waters, a determination shall be made pursuant to this section whether the degradation is necessary to accommodate important economic or

social development in the area in which the waters are located. The following provisions shall apply to this determination:

- (i) The “area in which the waters are located” shall be determined from the facts on a case-by-case basis. The area shall include all areas directly impacted by the proposed regulated activity.
- (ii) A determination shall be made from the facts on a case-by-case basis whether the proposed regulated activity is important economic or social development. If the activity proponent submits evidence that the regulated activity is important development, it shall be presumed important unless information to the contrary is submitted in the public review process. The determination shall take into account information received during the public comment period and shall give substantial weight to any applicable determinations by local governments or land use planning authorities.
- (iii) If the proposed regulated activity is determined to be important economic or social development, a determination shall be made whether the degradation that would result from such regulated activity is necessary to accommodate that development. The degradation shall be considered necessary if there are no water quality control alternatives available that (A) would result in no degradation or less degradation of the state waters and (B) are determined to be economically, environmentally, and technologically reasonable.

This determination shall be based on an assessment of whether such alternatives are available, based upon a reasonable level of analysis by the project proponent, consistent with accepted engineering practice, and any information submitted by the public or which is otherwise available. The assessment shall address practical water quality control technologies, the feasibility and availability of which has been demonstrated under field conditions similar to those of the activity under review. The scope of alternatives considered shall be limited to those that would accomplish the proposed regulated activity's purpose. Any alternatives that would be inconsistent with section 25-8-104 of the Water Quality Control Act shall not be considered available alternatives.

In determining the economic reasonableness of any less-degrading water quality control alternatives, the Division may take into consideration any relevant factors, including but not limited to the following, if applicable:

- (A) Whether the costs of the alternative significantly exceed the costs of the proposal;
- (B) For publicly owned treatment works (POTWs) or public water supply projects, whether user charges resulting from the alternative would significantly exceed user charges for similarly situated POTWs or public water supply projects;

- (C) For private industry, whether the alternative would have a significant adverse effect upon the project's profitability or competitive position (if the project proponent chooses to provide such information);
- (D) For any dischargers, whether treatment costs resulting from the alternative would significantly exceed treatment costs for any similar existing dischargers on the segment in question.
- (E) The relative, long-term, energy costs and commitments and availability of energy conservation alternatives

(e) Public Participation and Intergovernmental Coordination

Procedural provisions relating to public participation and intergovernmental coordination and antidegradation reviews are set forth in the Procedural Rules, Regulation No. 21, section 21.16 (5 CCR 1002-21).

(f) Public Nomination-Water Quality Based Designations

Any person may nominate any state water for designation as outstanding waters or use-protected during triennial review or at any time. Such nomination shall include written documentation of the qualifications for such designation based upon the criteria in section 31.8(2)(a) or(b).

(g) Protection of Existing Uses

If, during an antidegradation review, it is determined that an existing use of the affected waterbody has not been classified, prior to completing the antidegradation review for an applicable regulated activity, an expeditious rulemaking hearing shall be held (on an emergency basis if necessary) to consider adoption of the additional classification.

31.9 FLOW CONSIDERATIONS

(1) Low Flow Exceptions

Water quality standards shall apply at all times; provided, that in developing effluent limitations or other requirements for discharge permits, the Division shall normally define critical flow conditions using the following low-flow values: the empirically based 30-day average low flow with an average 1-in-3-year recurrence interval (30E3) for chronic (30-day) standards or the empirically based 1-day low flow with an average 1-in-3-year recurrence interval (1 E3) for acute (1-day) standards, or the equivalent statistically-based flow. For certain substances, such as ammonia, the low flow exceptions may be based on periodic or seasonal flows. The length of the periods will be determined on a case-by-case basis by the Division.

(2) Waters Not Yet Classified

Discharges to waters not presently classified must meet established effluent limitation regulations, the basic standards, antidegradation rule and control regulations. Effluent flows which reach a classified body of water, even though the discharge point is to a water not yet classified, must be of a quality which will not cause the standards of the classified body of water to be violated.

(3) Mixing Zone

- (a) The mixing zone is that area of a water body designated on a case-by-case basis by the division which is contiguous to a point source and in which the standards may not apply. The mixing zone is intended to serve as a zone of initial dilution in the immediate area of a discharge; however, the ecological and human health effects of some pollutants may be so adverse that a mixing zone for such pollutants will not be allowed.
- (b) The size and shape of the mixing zone will be determined by the division considering the following factors:
 - (i) Where necessary to protect aquatic life, there shall be a zone of passage around the mixing zone which allows sufficient passage of aquatic life so as not to have a detrimental effect on their population.
 - (ii) Biological communities shall not be interfered with to a degree which is damaging to the ecosystem in adjacent waters; nor shall there be detrimental effects to other beneficial uses.
 - (iii) There shall be no mixing zone for certain harmful substances such as those identified pursuant to 307(a) of the federal Act.
 - (iv) Mixing zones shall not overlap so as to cause harmful effects in adjacent waters or to interfere with zones of passage.
 - (v) Concentrations of harmful substances in the mixing zone shall not exceed acutely lethal concentrations for biota significant to the aquatic community except where instream dilution flow is significantly greater than effluent flow and mixing is rapid.
 - (vi) The conditions of the mixing zone shall be controlled so as to comply with items (I)(a) and (b) of the Basic Standards, section 31.11.
 - (vii) In establishing a mixing zone, potential groundwater aquifer contamination shall be considered.

31.10 DISCHARGE TO OTHERWISE DRY STREAM BEDS

(3) Discharge to Otherwise Dry Stream Beds

“Otherwise dry stream beds” are stream beds which would be dry if effluent were not being discharged into them. To insure that conditions in such stream beds will not impair existing or classified uses in the stream or in downstream waters and will protect groundwater aquifers, discharge limitations more stringent than those established in effluent limitation regulations will be imposed if necessary.

31.11 BASIC STANDARDS APPLICABLE TO SURFACE WATERS OF THE STATE

All surface waters of the state are subject to the following basic standards; however, discharge of substances regulated by permits which are within those permit limitations shall not be a basis for enforcement proceedings under these basic standards:

- (1) Except where authorized by permits, BMP's, 401 certifications, or plans of operation approved by the Division or other applicable agencies, state surface waters shall be free from substances attributable to human-caused point source or nonpoint source discharge in amounts, concentrations or combinations which:
 - (a) for all surface waters except wetlands;
 - (i) can settle to form bottom deposits detrimental to the beneficial uses. Depositions are stream bottom buildup of materials which include but are not limited to anaerobic sludges, mine slurry or tailings, silt, or mud; or
 - (ii) form floating debris, scum, or other surface materials sufficient to harm existing beneficial uses; or
 - (iii) produce color, odor, or other conditions in such a degree as to create a nuisance or harm existing beneficial uses or impart any undesirable taste to significant edible aquatic species or to the water; or
 - (iv) are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life; or
 - (v) produce a predominance of undesirable aquatic life; or
 - (vi) cause a film on the surface or produce a deposit on shorelines; and
 - (b) for surface waters in wetlands;
 - (i) produce color, odor, changes in pH, or other conditions in such a degree as to create a nuisance or harm water quality dependent functions or impart any undesirable taste to significant edible aquatic species of the wetland; or
 - (ii) are toxic to humans, animals, plants, or aquatic life of the wetland.
- (2) The radioactive materials in surface waters shall be maintained at the lowest practical level. In no case shall radioactive materials in surface waters be increased by any cause attributable to municipal, industrial, or agricultural practices or discharges to as

to exceed the following levels, unless alternative site-specific standards have been adopted pursuant to subsection (4) below:

<u>Parameter</u>	<u>Picocuries per Liter</u>
Americium 241	0.15
Cesium 134	80
Plutonium 239, and 240	0.15
Radium 226 and 228	5
Strontium 90	8
Thorium 230 and 232	60
Tritium	20,000

- (3) The interim organic pollutant standards contained in the following Basic Standards for Organic Chemicals Table are applicable to all surface waters of the state for which the corresponding use classifications have been adopted, unless alternative site-specific standards have been adopted pursuant to [sub-section\(4\)](#) below.

Note that all standards in the Basic Standards for Organic Chemicals Table are being adopted as “interim standards.” These interim standards will remain in effect until alternative permanent standards are adopted by the Commission in revisions to this regulation of site-specific standards determinations. Although fully effective with respect to current regulatory applications, these interim standards shall not be considered final or permanent standards subject to antibacksliding or downgrading restrictions.

BASIC STANDARDS FOR ORGANIC CHEMICALS
(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ⁴	
	Water Supply ²	Water+Fish ³	Fish Ingestion ⁸	Acute	Chronic
CAS No.					
Acenaphthene 83-32-9	420	420	2,700	1,700	520
Acenaphthylene (PAH) 208-96-8	--	0.0028	---		---
Acrolein 107-02-8	110	---	---	38	21
Acrylonitrile ^c 107-13-1	0.065	0.059	0.66	7,500	2,600
Alachlor 15972-60-8	2 ^M	1.2	71		---
Aldicarb 116-06-3	7 ^M	---	---		---
Aldicarb Sulfone 1646-88-4	7 ^M	---	---	---	---
Aldicarb Sulfoxide 1646-87-3	7 ^M	---	---	---	---
Aldrin ^c 309-00-Z	1.0021	0.00013	0.00014	1.5	---
Anthracene (PAH) 120-12-7	2,100	2,100	110,000	---	---
Atrazine 1912-24-9	3 ^M	---	---	---	---
Benzene ^c 71-43-2	1.2	1.2	71	5,300	---
Benzidine ^c 92-87-5	0.00015	0.00012	0.00054	2,500	---
Benzo(a)anthracene (PAH) ^c 56-55-3	0.0048	0.0044	0.049		---
Benzo(a)pyrene (PAH) ^c 50-32-8	0.0048	0.0044	0.049		---
Benzo(b)fluoranthene (PAH) ^c 205-99-z	0.0048	0.0044	0.049		---
Benzo(k)fluoranthene (PAH) ^c 207-08-g	0.0048	0.0044	0.049		---
Benzo(g,h,i)perylene (PAH) 191-24-2	---	0.0044	---	---	---

BASIC STANDARDS FOR ORGANIC CHEMICALS
(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ⁴	
	Water Supply'	Water+Fish ³	Fish Ingestion ⁸	Acute	Chronic
CAS No.					
BHC Hexachlorocyclohexane 608-73-1	---	---	---	100	---
Bromodichloromethane (HM) 75-27-4	---	0.56	46	11,000	---
Bromoform (HM) ^c 75-25-4	---	4.3	360	---	---
Butylbenzylphthalate 85-68-7	1,400	1,400	5,200	---	---
Carbofuran ^c 1563-66-2	40 ^M	---	- -	---	---
Carbon tetrachloride ^c 56-23-5	0.27	0.25	4.4	35,200	
Chlordane ^c 57-74-9	0.10	0.0021	0.0022	1.2	0.0043
Chlorethyl ether (BIS-2) ^c 111-44-4	0.032	0.031	1.4	---	---
Chlorobenzene 108-90-7	100 ^M	100	21,000	---	
Chlorodibromomethane(HM) 124-48-1		140	57,000	---	---
Chloroform (HM) 67-66-3	---	5.7	470	28,900	1,240
Chloroisopropyl ether(BIS-2) 39638-32-9	280	280	170,000	---	---
4-Chloro-3-methylphenol 39638-32-9	210	---	---	30	---
Chloronapthalene ² 91-58-7	560	560	---	2,300	620
Chlorophenol ² 95-57-8	35	35	400	4.380	2,000
Chlorphrifos 2921-88-2	21	---	---	0.083	0.041
Chrysene (PAH) ^c 218-01-g	0.0048	0.0044	0.0049	---	---
DDD ^c 72-54-82	0.15	0.00083	0.00084	0.6	---
DDE' 72-55-9	0.1	0.00059	0.00059	1,050	---
DDT ^c 50-29-32	0.1	0.00059	0.00059	0.55	0.001

BASIC STANDARDS FOR ORGANIC CHEMICALS
(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ⁴	
	Water Supply ²	Water+Fish ³	Fish Ingestion ⁸	Acute	Chronic
CAS No.					
Dalapon 75-99-0	200 ^M		---	---	---
Demeton 8065-48-3	--	---	---	---	0.1
Dibenzo(a,h)anthracene (PAH) ^c 53-70-3	0.0048	(1.0044	0.0049	---	---
1,2 Dibromo-3-Chloropropane (DBCP) ^c 96-12-8	0.2 ^M	---	---	---	---
1,2-Dichlorobenzene 95-50-1	600 ^M	600	17,000	---	---
1,3-Dichlorobenzene 541-73-1	600 ^M	100	2,600	---	---
1,4-Dichlorobenzene 106-46-7	75 ^M	75	2,600	---	---
Dichlorobenzidine ^c 91-94-1	0.078	(1.039	0.77	---	---
1,2-Dichloroethane 107-06-2	0.38	(3.38	99	118,000	20,000
1,1-Dichloroethylene 75-35-4	7 ^M	7	17,000	---	---
1,2-cis-Dichloroethylene 156-59-2	70 ^M	---	---	---	---
1,2-trans-Dichloroethylene 156-60-5	100 ^M	100	140,000	---	---
2,4-Dichlorophenol 120-83-2	21	21	790	2,020	365
2,4-Dichlorophenoxyacetic acid (2,4-D) 94-75-7	70 ^M	---	---	---	---
1,2-Dichloropropane 78-87-5	0.52	0.52	39	23,000	5,700
1,3-Dichloropropylene 542-75-6	---	10	1,700	6,060	244
Dieldrin ^c 60-57-1	0.002	0.00014	0.00014	0.24	0.056
Diethyl phthalate 84-66-2	5,600	5,600	120,000	---	
Diisopropylmethylphosphonate (DIMP) 1445-75-6	8	---	---	---	

BASIC STANDARDS FOR ORGANIC CHEMICALS

(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ¹	
	Water Supply ²	Water+Fish ³	Fish Ingestion ⁸	Acute	Chronic
CAS No.					
Dimethylphenol 2,4 105-67-9	140	140	---	2,120	---
Dimethyl phthalate 131-11-3	---	313,000	290,000	---	---
Di-n-butyl phthalate 84-74-2	700	700	12,000	---	---
Dinitrophenol 2,4 51-28-5	14	14	14,000	---	---
Dinitro-o-cresol 4,6 534-52-1	2.7	2.7	765	---	---
Dinitrotoluene 2,4 ^c 121-14-2	0.11	0.11	9.1	---	---
Dinitrotoluene 2,6 ^c 606-20-2	---	---	---	330	230
Dinoseb 88-85-7	7 ^M	---	---	---	---
Dioxin (2,3,7,8 TCDD) ^c 1746-01-6	2.2x10 ⁻⁷	1.3x10 ⁻⁸	1.4x10 ⁻⁸	0.01	0.00001
Diphenylhydrazine 1,2 ^c 122-66-7	0.044	0.040	0.54	270	---
Di(2-ethylhexyl)adipate 103-23-1	400 ^M	---	---	---	---
Diquat 85-00-7	20 ^M	---	---	---	---
Endosulfan 115-29-7	0.35	---	---	0.11	0.056
Endosulfan, alpha 95-99-88	42	---	---	0.11	0.056
Endosulfan, beta 3321-36-59	42	---	---	0.11	0.056
Endosulfan sulfate 1031-07-8	42	---	---	0.11	0.056
Endothall 145-73-3	100 ^M	---	---	---	---
Endrin 72-20-8	2 ^M	---	---	0.086	0.036
Endrin aldehyde 7421-93-4	2.1	0.76	0.81	---	---

BASIC STANDARDS FOR ORGANIC CHEMICALS

(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ⁴	
	Water Supply ²	Water+Fish ³	Fish Ingestion*	Acute	Chronic
CAS No.					
Ethylbenzene 100-41-4	700 ^M	700	29,000	32.000	---
Ethylene dibromide ^C 106-93-1	0.05 ^M	---	---	---	---
Ethylhexyl phthalate (BIS-2) ^C 117-81-7	2.5	1.8	5.9	---	---
Fluoranthene (PAH) 206-44-0	280	280	370	3,980	---
Fluorene (PAH) 86-73-7	4,000 ^M	1300	14,000	---	---
Glyphosate 1071-83-6	700 ^M	---	---	---	---
Guthion 86-50-0	---	---	---	---	0.01
Heptachlor ^C 76-44-8	0.008	0.00021	0.00021	0.52	0.0038
Heptachlor epoxide ^C 1024-57-3	0.004	0.0001	0.00011	0.52	0.0038
Hexachlorobenzene ^C 116-74-1	1.0 ^M	0.00075	0.00077	--	---
Hexachlorobutadiene 87-68-3	14	14	---	90	9.3
Hexachlorocyclohexane, Alpha ^C 319-84-6	0.0056	0.0039	0.013	---	---
Hexachlorocyclohexane, Beta 319-85-7	---	0.014	0.046	---	---
Hexachlorocyclohexane, Gamma (Lindane) 58-89-9	0.2 ^M	0.2	---	0.95	0.08
Hexachlorocyclohexane. Technical ^C 608-73-1	---	0.012	0.014	---	---
Hexachlorocyclopentadiene 77-47-4	50 ^M	50	---	7	5
Hexachloroethane 67-72-1	7.0	7.0	120	980	540
Indeno(1,2,3-cd)pyrene(PAH) ^C 193-39-5	0.048	0.0044	0.049	---	---
Isophorone 78-59-1	40	36	117,000	---	---

BASIC STANDARDS FOR ORGANIC CHEMICALS
(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ⁴	
	Water Supply ²	Water+Fish ³	Fish Ingestion*	Acute	Chronic
CAS No.					
Malathion 121-75-4	140	---	--		0.1
Methoxychlor 72-43-5	40 ^M	---	---		0.03
Methyl bromide (HM) 74-83-9	---	48	4,000		---
Methyl chloride (HM) ^C 74-87-3	---	5.7	471		---
Methylene chloride ^C 75-09-2	4.7	4.7	1,600		---
Mirex 2385-85-5	---	---	---		0.001
Naphthalene (PAH) 91-20-3	28	28	---	2,300	620
Nitrobenzene 98-95-3	3.5	3.5	1,900	27,000	---
Nitrophenol ⁴ 100-02-7	56	56	26,000		---
Nitrosodibutylamine N 924-16-3	---	0.0064	0.587		---
Nitrosodiethylamine N 55-18-5	---	0.0008	1.24		---
Nitrosodimethylamine N ^C 62-75-9	0.00069	0.00069	8.1		---
Nitrosodiphenylamine N ^C 86-30-6	7.1	5.0	16		---
Nitrosopyrrolidine N 930-55-2	---	0.016	91.9		---
N-Nitrosodi-n-propylamine ^C 621-64-7	0.005	0.005	1.4	---	---
Oxamyl(vydate) 23135-22-O	200 ^M	--	--	---	---
PCBs ^C , 9 1336-36-3	0.0175	0.00017	0.00017	2.0	0.014
Parathion 56-38-2	---	---	---	0.065	0.013
Pentachlorobenzene 608-93-5	5.6	3.5	4.1		---
Pentachlorophenol ^C 87-86-5	1.0 ^M	0.28	8.2	19 ⁶	15 ⁶
Phenanthrene (PAH) 85-01-8	---	0.0028	---	---	---
Phenol 108-95-2	4,200	4,200	---	10,200	2,560
Picloram 1918-02-I	500 ^M	---	---	---	---

BASIC STANDARDS FOR ORGANIC CHEMICALS
(in micrograms per liter)

Parameter	Human Health Based ¹			Aquatic Life Based ⁴	
	Water Supply*	Water+Fish ³	Fish Ingestion*	Acute	Chronic
Pyrene (PAH) 129-00-0	210	210	1,100	---	---
Simazine 122-34-9	4 ^M	---	---	---	---
Styrene 100-42-5	100 ^M	---	---	---	---
Tetrachlorobenzene 1,2,4-5 95-94-3	2.1	2.3	2.9	---	---
Tetrachloroethane 1,1,2,2 ^c 79-34-5	0.18	0.17	11	---	2,400
Tetrachloroethylene ^c 127-18-4	5 ^M	0.8	8.8	5,280	840
Toluene 108-88-3	1,000 ^M	1,000	---	17,500	---
Toxaphene ^c 8001-35-Z	0.032	0.00073	0.00075	0.73	0.0002
Trichlorobenzene 1,2,4 120-82-1	70 ^M	70	---	250	50
Trichloroethane 1,1,1 71-55-6	200 ^M	200	---	---	---
Trichloroethane 1,1,2 79-00-5	3	3	---	9,400	---
Trichloroethylene ^c 79-01-6	5 ^M	2.7	81	45,000	21,900
Trichlorophenol 2,4,6 ^c 88-06-Z	3.2	2.1	6.5	---	970
Trichlorophenoxypropionic acid (2,4,5-tp) 93-72-1	50 ^M	10	---	---	---
Trihalomethanes (total) ⁷	80	80	---	---	---
Vinyl chloride ^c 75-01-4	2 ^M	2	530	---	---
Xylenes (total) 1330-20-7	10,000~	---	---	---	---

¹ All standards are chronic or 30-day standards. They are based on information contained in EPA's Integrated Risk Information System (IRIS) and/or EPA lifetime health advisories for drinking water using a IO-6 incremental risk factor unless otherwise noted

² Only applicable to segments classified for water supply.

³ Applicable to all Class 1 aquatic life segments which also have a water supply classification or Class 2 aquatic life segments which also have a water supply classification designated by the Commission after rulemaking hearing. These class 2 segments will generally be those where fish of a catchable size and which are normally consumed are present, and where there is evidence that fishing takes place on a recurring basis. The Commission may also consider additional evidence that may be relevant to a determination whether the conditions applicable to a particular segment are similar enough to the assumptions underlying the water plus fish ingestion criteria to warrant the adoption of water plus fish ingestion standards for the segment in question.

⁴ Applicable to all aquatic life segments.

⁵ PQL's for the constituents listed above can be found at section 61.8((2)) of the Regulations for the State Discharge Permit System.

⁶ Standards are pH dependent. Those listed are calculated for pH = 7.8.

⁷ $Acute = e^{[1.005(pH)-4.869]}$; $Chronic = e^{[1.005(pH)-5.134]}$

Total trihalomethanes are considered the sum of the concentrations of bromodichloromethane (CAS No. 75-27-4), dibromochloromethane (Chlorodibromomethane(HM), CAS No. 124-48-1) tribromomethane (bromoform, CAS No. 75-25-2) and trichloromethane (chloroform, CAS No. 67-66-3).

Applicable to the following segments which do not have a water supply classification: all Class 1 aquatic life segments or Class 2 aquatic life segments designated by the Commission after rulemaking hearing. These class 2 segments will generally be those where fish of a catchable size and which are normally consumed are present, and where there is evidence that fishing takes place on a recurring basis. The Commission may also consider additional evidence that may be relevant to a determination whether the conditions applicable to a particular segment are similar enough to the assumptions underlying the fish ingestion criteria to warrant the adoption of fish ingestion standards for the segment in question.

⁹ PCBs are a class of chemicals which include aroclors, 1242, 1254, 1221, 1232, 1248, 1260 and 1016, CAS numbers 53469219, 11097691, 11104282, 11141165, 12672296, 11096825, and 12674112 respectively. The aquatic life criteria apply to this set of PCBs. The human health criteria apply to total PCBs, ie the sum of all congener or all isomer analyses.

^C Carcinogens classified by the EPA as A, B1, or B2.

^M Drinking water MCL.

CAS No. - Chemical Abstracts Service Registry Number

(HM) - Halomethanes

(PAH) - Polynuclear Aromatic Hydrocarbons.

(4) Site-Specific Radioactive Materials and Organic Pollutants Standards

- (a) In determining whether to adopt site-specific standards to apply in lieu of the statewide standards established in sections (2) and (3) above, the Commission shall first determine the appropriate use classifications, in accordance with section 31.13. If such a determination would result in removing an existing classification, the downgrading factors in section 31.6 (2)(B) shall apply.
- (b) The Commission shall then determine whether numerical standards other than some or all of the statewide standards established in sections (2) and (3) above would be more appropriate for protection of the classified uses, taking into account the factors prescribed in section 25-8-204(4), C.R.S. and in section 31.7. The downgrading factors described in section 31.6(2)(B) shall not apply to the establishment of site-specific standards under this section.
- (c) Site-specific standards to apply in lieu of statewide standards may be based upon consideration of the appropriateness of the assumptions used in the risk assessment based potency factors and reference dose values, including, but not limited to, consideration of the uncertainty factor, exposure assessment, bioaccumulation factor, exposed population factor, assumed consumption factor, risk comparisons, uncertainty analysis, and the availability of the toxics in the water column, considering persistence, hardness, pH, temperature or valence form in the water column.

(5) Nothing in this regulation shall be interpreted to preclude:

- (a) An agency responsible for implementation of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. 9601 et seq., as amended, from selecting a remedial action that is more or less stringent than would be achieved by compliance with the statewide numerical standards established in this section, or alternative site-specific standards adopted by the commission, where a determination is made that such a variation is authorized pursuant to the applicable provisions of CERCLA.
- (6) Except where the Commission adopts or has adopted a different standard on a site-specific basis, the less restrictive of the following two options shall apply as numerical standards for all surface waters with a “water supply” classification, if water supply is an actual use of the waters in question or of hydrologically connected ground water:
 - i. existing quality as of January 1, 2000; or
 - ii. the following table value criteria set forth in Tables II and III:

Iron	300 ug/l (dissolved)
Manganese	50 ug/l (dissolved)
Sulfate	250 mg/l

Provided, that if the existing quality of these constituents in **such surface** waters as of January 1, 2000, is affected by an unauthorized discharge with respect to which the Division has undertaken an enforcement action, the numerical standards shall be the ambient conditions existing prior to the unauthorized discharge or the above table value criteria, whichever is less restrictive.

Data generated subsequent to January 1, 2000 shall be presumed to be representative of existing quality as of January 1, 2000, if the available information indicates that there have been no new or increased sources of these pollutants impacting the segment(s) in question subsequent to that date.

For all surface waters with a "water supply" classification that are not in actual use as a water supply, the water supply table value criteria for sulfate, iron and manganese set forth in Tables II and III may be applied as numerical standards only if the Commission determines as the result of a site-specific rulemaking hearing that such standards are necessary and appropriate in accordance with section 31.7.

31.12 SALINITY AND SUSPENDED SOLIDS

The Commission recognizes that excessive salinity and suspended solids levels can be detrimental to the water use classifications. The Commission has established salinity standards for the Colorado River Basin ("Water Quality Standards for Salinity including Numeric Criteria and Plan of Implementation of Salinity Control", Commission Regulation No. 39) but has not established or assigned other standards for salinity or suspended solids control practices to be developed through 208 plans, coordination with agricultural agencies, and further studies of existing water quality.

31.13 STATE USE CLASSIFICATIONS

Waters are classified according to the uses for **which** they are presently suitable or intended to become suitable. In addition to the classifications, one or more of the qualifying designations described in section **31.13(2)**, may be appended. Classifications may be established for any state surface waters, except that water in ditches and other manmade conveyance structures shall not be classified.

(1) Classifications

(a) Recreation

(i) Class 1 - Primary Contact

These surface waters are suitable or intended to become suitable for recreational activities in or on the water when the ingestion of small quantities of water is likely to occur. Such waters include but are not limited to those used for swimming, rafting, kayaking, tubing, windsurfing and water-skiing. Waters shall be presumed to be suitable for Class 1 uses and shall be assigned a class

1 a or class 1 b classification unless a use attainability analysis demonstrates that there is not a reasonable potential for primary contact uses to occur in the water segment(s) in question within the next 20-year period

- I. Class 1a - Existing Primary Contact: Class 1a waters are those in which primary contact uses have been documented or are presumed to be present. Waters for which no use attainability analysis has been performed demonstrating that a recreation class 2 classification is appropriate shall be assigned a class 1a classification, unless a reasonable level of inquiry has failed to identify any existing class 1 uses of the water segment.
- II. Class 1 b - Potential Primary Contact: This classification shall be assigned to water segments for which no use attainability analysis has been performed demonstrating that a recreation class 2 classification is appropriate, if a reasonable level of inquiry has failed to identify any existing class 1 uses of the water segment.

(ii) Class 2 - Secondary Contact

These surface waters are not suitable or intended to become suitable for primary contact recreation uses, but are suitable or intended to become suitable for recreational uses on or about the water which are not included in the primary contact subcategory, including but not limited to wading, fishing and other streamside or lakeside recreation.

(b) Agriculture

These surface waters are suitable or intended to become suitable for irrigation of crops usually grown in Colorado and which are not hazardous as drinking water for livestock.

(c) Aquatic Life

These surface waters presently support aquatic life uses as described below, or such uses may reasonably be expected in the future due to the suitability of present conditions, or the waters are intended to become suitable for such uses as a goal:

(i) Class I - Cold Water Aquatic Life

These are waters that (1) currently are capable of sustaining a wide variety of cold water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Waters shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species.

(ii) Class 1 - Warm Water Aquatic Life

These are waters that (1) currently are capable of sustaining a wide variety of warm water biota, including sensitive species, or (2) could sustain such biota but for correctable water quality conditions. Waters shall be considered capable of sustaining such biota where physical habitat, water flows or levels, and water quality conditions result in no substantial impairment of the abundance and diversity of species.

(iii) Class 2- Cold and Warm Water Aquatic Life

These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species,

(d) Domestic Water Supply

These surface waters are suitable or intended to become suitable for potable water supplies. After receiving standard treatment (defined as coagulation, flocculation, sedimentation, filtration, and disinfection with chlorine or its equivalent) these waters will meet Colorado drinking water regulations and any revisions, amendments, or supplements thereto.

(e) Wetlands

- (i) The provisions of **this section** do not apply to constructed wetlands.
- (ii) Compensatory wetlands shall have, as a minimum, the classifications of the segment in which they are located.
- (iii) Created wetlands shall be considered to be initially unclassified, and shall be subject only to the narrative standards set forth in section 31.11, unless and until the Commission adopts the “wetlands” classification described below and appropriate numeric standards for such wetlands.
- (iv) Tributary wetlands shall be considered tributaries of the surface water segment to which they are most directly connected and shall be subject to interim classifications as follows: such wetlands shall be considered to have the same classifications, except for drinking water supply classifications, as the segment of which they are a part, unless the “wetlands” classification and appropriate site-specific standards have been adopted to protect the water quality dependent functions of the wetlands. Interim numeric standards for these wetlands are described in section 31.7(1)(b)(iv).
- (v) The Commission may adopt a “wetlands” classification based on the functions of the wetlands in question. Wetland functions that may warrant site-specific protection include ground water recharge or discharge, flood flow alteration, sediment stabilization, sediment or other pollutant retention, nutrient removal or transformation, biological diversity or uniqueness, wildlife diversity or

abundance, aquatic life diversity or abundance, and recreation. Because some wetland functions may be mutually exclusive (e.g., wildlife abundance, recreation), the functions to be protected or restored will be determined on a wetland-by-wetland basis, considering natural wetland characteristics and overall benefits to the watershed. The initial adoption of a site-specific wetlands classification and related standards to replace the interim classifications and standards described above shall not be considered a downgrading,

(2) Qualifiers

The following qualifiers may be appended to any classification to indicate special considerations. Where a qualifier applies, it will be appended to the use classification; for example, "Class 1, Warm Water Aquatic Life (Goal)".

(a) Goal

A qualifier which indicates that the waters are presently not fully suitable but are intended to become fully suitable for the classified use. "Goal" will be used to indicate that a temporary modification for one or more of the underlying numeric standards has been granted.

(b) Seasonal

A qualifier which indicates that the water may only be suitable for a classified use during certain periods of the year. During those periods when water is in the stream, the standards as defined in sections 31.7(l)(b) and 31.9(1) shall apply.

(c) Interrupted Flow

A qualifier which indicates that due to natural or human induced conditions the continuity of flow is broken not necessarily according to a seasonal schedule. This qualifier appended to a classification indicates that the flow conditions still permit the classified use during period of flow. The presence of water diversions in a stream does not change the classifications and standards and the standards do not require that flow be maintained in the stream.

(3) Areas Requiring Special Protection

In special cases where protection of beneficial uses requires standards not provided by the classification above, special standards may be assigned after full public notice and hearings. Cases where special protection may be needed include but are not limited to wildlife preserves and waterbodies endangered by eutrophication. In addition, the Commission may adopt site-specific criteria-based standards based on site specific analyses to protect agriculture, water supply or recreational uses.

31.14 INTEGRATION INTO DISCHARGE PERMITS

- (1) A classification and/or standard assigned by the Commission to any segment of state surface waters may affect the degree of treatment required prior to discharge of effluent to such waters. Where effluent limitation regulations applicable to discharges into a segment of state waters or Best Management Practices (BMP's) or other activities are adequate to maintain or attain the assigned classifications and standards, only the effluent limitation regulations will control the discharge, (See Regulation 71). Such segments are termed "effluent limited".
- (2) Where the effluent limitation regulations applicable to the discharge or BMP's or other controls are inadequate to maintain or attain the assigned classifications and standards, a degree of treatment which will maintain or attain such classifications and standards will be required. Such segments are termed "water quality limited".
- (3) For water quality limited segments, Total Maximum Daily Loads (TMDL's) and Waste Load Allocations will be developed and integrated into discharge permits. Flow modifications and other factors may also affect TMDL's and may have a corresponding effect on discharge permits. Permits will also be written in accordance with any temporary modification granted by the Commission to the underlying numeric standards assigned to those waters and a plan for eliminating the temporary modifications shall be included in the discharge permits where appropriate. The requirements for such plans are discussed in section 31,7(3)(b).
- (4) Discharge permits will be issued by the Division to comply with basic, narrative, and numeric standards and control regulations so that all discharges to state surface waters protect the classified uses. For new standards, revised standards that have become more stringent, and new interpretations of existing standards, the Division shall include schedules of compliance in permits when it determines such schedules to be necessary and appropriate. Where no statewide or site-specific numeric standard exists for a constituent of concern, the Division may establish effluent limitations or other permit conditions for such constituent if necessary to comply with the narrative standards in section 31.1 I(1). Such effluent limitations shall be developed in a manner consistent with the Commission's methodology for establishing numeric water quality standards and, if applicable, shall be consistent with the criteria contained in table I, II and III of this regulation. In such circumstances, upon the request of any interested person, the Commission may hold a rulemaking hearing to consider the adoption of a numerical standard, which would then be binding.
- (5) When proposed by a discharger, innovative solutions or management approaches may be used to achieve and maintain water quality standards and may be integrated into discharge permits where appropriate.
- (6) Dischargers will not be required to regularly monitor for any parameters that are not identified by the Division as being of concern.

- (7) The determination of metals concentrations in effluents and compliance with NPDES permit limits will be based on the “potentially dissolved” method when based on “dissolved” metals standards, and on the “total recoverable” method when based on “total recoverable” metals standards. Where a discharger can demonstrate to the satisfaction of the Division the **instream** relationship between dissolved and total recoverable metals, permit limits for those metals which are based on dissolved metals standards may be adjusted taking into account this relationship and be expressed in the total recoverable form. In addition, if requested by a discharger, the Division will allow the total recoverable analytical procedure for metals to be used in lieu of the potentially dissolved procedure without adjustment of the required effluent levels.
- (8) The flow associated with the duration and frequency of exceedance criteria as defined in sections 31.7, 31.9 and 31.16 shall be utilized in determining permit limitations.
- (9) Whenever the practical quantitation level or PQL for a pollutant is higher (less stringent) than an effluent limitation or other reporting requirement that would result from direct application of site-specific water quality standards or the statewide standards in section 31.11, the PQL shall be used as the compliance threshold; that is, the permit shall require that the level of discharge be less than the PQL. For organic chemical standards, the **PQLs** identified in the Regulations for the State Discharge Permit System shall apply, unless and until they are modified as a result of a subsequent rulemaking hearing, or a site-specific or discharge-specific PQL is established.
- (10) Discharge permit monitoring requirements for individual constituents for which standards are established in section 31.11 or pursuant to section 31.7 may be incorporated into permits where the Division determines that toxic conditions **are**, present or that the individual constituent is likely to be present in the effluent on a continuous or recurring basis in quantities which could cause the stream standards to be violated. A constituent shall be considered not likely to be present in such quantities if data submitted by the permittee for all significant industrial users in an approved pretreatment program, and for any other individually or cumulatively significant sources, provides representative information demonstrating that specific constituents present will not result in a violation of water quality standards, at the established detection levels. Results of biomonitoring tests which show whether toxicity exists in the effluent or in the stream shall be considered by the Division when determining whether specific constituent limitations and monitoring requirements shall be included in permits. The Division may require the discharger to provide monitoring data on specific constituents, or biomonitoring test results, to determine the presence or absence of any constituent or the presence or absence of toxic conditions.
- (11) Discharge permit limitations for individual constituents for which standards are established in section 31.11 or pursuant to section 31.7 may be included in discharge permits when the Division determines that the individual constituent is likely to be present in the effluent on a continuous or recurring basis in quantities which could

cause the stream standards to be violated. A constituent shall be considered not likely to be present in such quantities if data submitted by the permittee for all significant industrial users in an approved pretreatment program, and for any other individually or cumulatively significant sources, provides representative information demonstrating that specific constituents present will not result in a violation of water quality standards, at the established detection levels. The Division may require the discharger to provide monitoring data to determine the presence or absence of any constituent.

- (12) For purposes of implementing the organic chemical standard in section 31.11, where the Division has established effluent monitoring requirements for such parameters in a permit, submission of substitute monitoring data may be allowed under the following circumstances. The Division shall allow monitoring data on the quality of a wastewater treatment plant's influent, or of wastewater released into a domestic wastewater treatment works' collection system, to be substituted for effluent monitoring where the Division determines, based on information submitted by the permittee, that such data provides representative information demonstrating that the probable source(s) of an organic chemical that warranted the permit requirements will not result in a violation of water quality standards from the permittee's discharge. If such substitute monitoring data is provided for all identified probable sources, a domestic wastewater treatment works with an approved pretreatment program shall not be required to monitor its effluent for the pollutants for which standards are established in section 31.11 more frequently than annually, unless previous monitoring has indicated that such pollutants are present in quantities that could result in exceedence of the standards.
- (13) For purposes of implementation of water supply-based numerical standards for iron, manganese and sulfate into discharge permits, the Division shall develop effluent limitations that do not penalize the discharger for the concentrations of these constituents present in the water entering the wastewater treatment plant or other discharging facility, where the source of the constituents is ambient surface or ground water tributary to the receiving waters that is no worse than existing quality as of January 1, 2000.

31.15 SEVERABILITY

The provisions of this regulation are severable, and if any provisions or the application of the provisions to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this regulation shall not be affected thereby.

31.16 TABLES

(1) INTRODUCTION

The numeric levels for parameters listed in Tables I, II, III shall be considered and applied as appropriate by the Commission in establishing site-specific numeric standards. in accordance with section 31.7.

For the purposes of integrating these parameters into NPDES discharge permits, the duration of the averaging period for the numeric level is designated in the tables. Chronic levels and 30-day levels are to be averaged as defined in section 31.5(7). Acute levels and 1-day levels are to be averaged as defined in section 31.5(2).

Certain toxic metals for Aquatic Life have different numeric levels for different levels of water hardness. Water hardness is being used here as an indication of differences in the complexing capacity of natural waters and the corresponding variation of metal toxicity. Other factors such as organic and inorganic ligands, pH, and other factors affecting the complexing capacity of the waters may be considered in setting site-specific numeric standards in accordance with section 31.7. Metals listed in Table III for aquatic life uses are stated in the dissolved form unless otherwise indicated.

(2) TESTING PROCEDURES

Various testing procedures to determine that numeric values for water quality parameters may be appropriate to present to the Water Quality Control Commission at stream classification hearings. (See section 31.6(3)). These include:

(a) Standard Test Procedures:

- (i) Code of Federal Regulations, Title 40, Part 136;
- (ii) The latest approved EPA Methods for Chemical Analysis of Water and Wastes;
- (iii) Standard Methods for the Examination of Water and Wastewater (current edition), American Public Health Association;
- (iv) ASTM Standards, Part 31, Water;
- (v) EPA Biological Field and Laboratory Methods.

(b) Toxicity testing and Criteria Development Procedures:

- (i) The latest EPA Methods for Chemical Analysis of Water and Wastewater; ASTM, Standard Methods for Examination of Water, Wastewater;
- (ii) Interim Guidance on Determination and Use of Water-Effect Ratio for Metals, EPA-823-B-94-001, U.S. Environmental Protection Agency, February, 1994.
- (iii) Other approved EPA methods.

(c) Other Procedures:

Other procedures may be deemed appropriate by either the Water Quality Control Commission and/or the Water Quality Control Division.

(3) REFERENCES

Capital letters following levels in the tables indicate the sources of the level; they are referenced below. In some cases, the source is described in a footnote.

- (A) EPA Quality Criteria for Water, July 1976, U.S. Environmental Protection Agency, U.S. Government Printing Office: 1977 o-222-904, Washington, D.C. 256 p.
- (B) EPA-Water Quality Criteria 1972, Ecological Research Series, National Academy of Sciences, National Academy of Engineering, EPA-R3-73-033. March 1973. Washington, D.C. 594 p.
- (C) Davies, P.H. and Goettl, J.P., Jr., July 1976, Aquatic Life -Water Quality Recommendations for Heavy Metal and Other Inorganics.
- (D) Parametrix Inc., Attachment II, Parametrix Reports - Toxicology Assessments of As, Cu, Fe, Mn, Se, and Zn, May 1976, Bellevue, Washington, 98005. submitted to Water Quality Control Commission by Gulf Oil Corp., Inc., 161 p.
- (E) EPA National Interim Primary Drinking Water Regulations, 40 Code of Federal Regulations, Part 141.
- (F) EPA, March 1977, Proposed National Secondary Drinking Water Regulation, Federal Register, Vol. 42 No. 62, pp 17143-17147.
- (G) Recommendations based on review of all available information by the Committee on Water Quality Standards and Stream Classification.
- (H) American Fishery Society, June 1978, A Review of the EPA Red Book Quality Criteria for Water, (Preliminary Edition).
- (I) Section 307 of the Clean Water Act, regulations promulgated pursuant to Section 307.
- (J) Final Report of the Water Quality Standards and Methodologies Committee to the Colorado Water Quality Control Commission, June 1986.
- (K) Proposed Nitrogenous Water Quality Standards for the State of Colorado, by the Nitrogen Cycle Committee of the Basic Standards Review Task Force, March 12, 1986 (Final Draft).
- (L) Quality Criteria for Water, 1986, and Updates Through 1989, U.S. Environmental Protection Agency, U.S. Government Printing Office, EPA 440/5-86-001, Washington, D.C. 20460.
- (M) m superscript: level modified by Commission.

TABLE I

PHYSICAL AND BIOLOGICAL

PARAMETERS

PARAMETER	RECREATIONAL			AQUATIC LIFE			AGRICULTURE	DOMESTIC WATER SUPPLY
	CLASS 1a EXISTING PRIMARY CONTACT	CLASS 1b POTENTIAL PRIMARY CONTACT	CLASS 2 SECONDARY CONTACT	CLASS 1 COLD WATER BIOTA	CLASS 1 WARM WATER BIOTA	CLASS 2		
PHYSICAL								
D.O. (mg/l) ⁽¹⁾⁽⁸⁾	3.0 (A)		3.0 (A)	6.0 ⁽²⁾ (G) 7.0(spawning)	5.0 (A)		3.0 (A)	3.0 (A)
pH (Std. Units) ⁽³⁾	6.5-9.0 (Bm)			6.5-9.0(A)	6.5-9.0(A)			5.0-9.0(A)
Suspended Solids ⁽⁴⁾								
Temperature (°C)				Max 20 °C, with 3 °C Increase ⁽⁵⁾ (G)	Max 30° C, with 3 C Increase (5)(G)			
BIOLOGICAL:								
Fecal Coliforms per 100 ml (Geometric Mean)	200 ⁽⁶⁾ (A)	325 ⁽⁶⁾	2000 ⁽⁶⁾ (GM)					2000(E)
E. Coli per 100 ml	126 ⁽⁶⁾	205 ⁽⁶⁾	630 ⁽⁶⁾					630

Note: Capital letters in parentheses refer to references listed in section 31.16(3); Numbers in parentheses refer to Table 1 footnotes.

TABLE I - FOOTNOTES

- (1) Standards for dissolved oxygen are 1-day minima, unless specified other-wise. For the purposes of permitting, dissolved oxygen may be modeled for average conditions of temperature and flow for the worst case time period. Where dissolved oxygen levels less than these levels occur naturally, a discharge shall not cause a further reduction in dissolved oxygen in receiving water.
- (2) A 7.0 mg/liter standard (minimum), during periods of spawning of cold water fish, shall be set on a case-by-case basis as defined in the NPDES permit for those dischargers whose effluent would affect fish spawning.
- (3) The pH standards of 6.5 (or 5.0) and 9.0 are an instantaneous minimum and maximum, respectively to be applied as effluent limits.
- (4) Suspended solid levels will be controlled by Effluent Limitation Regulations, Basic Standards, and Best Management Practices (BMP's).
- (5) Temperature shall maintain a normal pattern of diurnal and seasonal fluctuations with no abrupt changes and shall have no increase in temperature of a magnitude, rate, and duration deemed deleterious to the resident aquatic life. Generally, a maximum 3 degrees Celsius increase over a minimum of a four-hour period, lasting for 12 hours maximum, is deemed acceptable for discharges fluctuating in volume or temperature. Where temperature increases cannot be maintained within this range using BMP, BATEA and BPWTT control measures, the Division will determine whether the resulting temperature increases preclude an aquatic life classification.
- (6) Fecal coliform and E. coli criteria, and resulting standards for individual water segments, are established as indicators of the potential presence of pathogenic organisms. In the 2000 rulemaking hearing, the Commission adopted dual fecal coliform and E. coli criteria in anticipation of a transition from reliance on the former to reliance on the latter indicator. The Commission intends that both indicators will be adopted as standards for individual water segments as these revisions are implemented in upcoming triennial reviews. So long as dual standards are in place for a water segment, the Commission intends that dischargers will have the option of either parameter being used in establishing their effluent limits. For the evaluation of ambient water quality data, e.g. for purposes of section 303(d) listing decisions, in the event of a conflict between fecal coliform and E. coli data, the E. coli data shall govern. Compliance with fecal coliform and/or E. coli standards shall be based on the geometric mean of representative stream samples.
- (7) For drinking water with or without disinfection.
- (8) The dissolved oxygen criteria is intended to apply to the epilimnion and metalimnion strata of lakes and reservoirs. Dissolved oxygen in the hypolimnion may, due to the natural conditions, be less than the table criteria. No reductions in dissolved oxygen levels due to controllable sources is allowed.

TABLE II

INORGANIC PARAMETERS

PARAMETER	AQUATIC LIFE			AGRICULTURE	DOMESTIC WATER SUPPLY
	CLASS 1 Cold Water Biota	CLASS 1 Warm Water Biota	CLASS 2		
INORGANICS:					
Ammonia (mg/l as N) (Un-ionized unless otherwise noted)	chronic = 0.02(K) acute = 0.43/FT/FPH/2 ⁽⁴⁾	chronic = 0.06(K) acute = 0.62/FT/FPH/2 ⁽⁴⁾	acute: see (1) chronic: Cold = 0.02 Warm = 0.06-0.10 ⁽¹⁾		0.5 total ⁽²⁾ (K) (30-day)
Total residual Chlorine (mg/l)	0.019 (L) (1-day)	0.011 (L) (30-day)	0.019 (L) (1-day)		
Cyanide – Free (mg/l)	0.005(H) (1-day)	0.005(H) (1-day)		0.2(G) (1-day)	0.2(B,D ^m) (1-day)
Fluoride (mg/l)					2.0 ⁽⁵⁾ (E) (1-day)
Nitrate (mg/l as N)				100(3)(B)	10 ⁽⁶⁾ (K) (1-day)
Nitrite (mg/l as N)	TO BE ESTABLISHED ON (5)	A CASE BY CASE BASIS (5)		10(3)(B) (1-day)	1.0(2) ⁽⁶⁾ (K) (1-day)
Sulfide as H ₂ S(mg/l)	0.002 undissociated(A) (30-day)	0.002 undissociated(A) (30-day)			0.05(F) (30-day)
Boron (mg/l)				0.75(A,B) (30-day)	
Chloride (mg/l)					250(F) (30-day)
Sulfate (mg/l)					250(F) (30-day)
Asbestos					7,000,000 fibers/L ⁽⁷⁾

NOTE: Capital letters in parentheses refer to references listed 31.16(3); numbers in parentheses refer to table II footnotes.

TABLE II - FOOTNOTES

(1) For class 2 warm water aquatic life segments, where table value standards are to be applied, a specific chronic standard in the 0.06 to 0.10 mg/l range for un-ionized ammonia shall be selected based upon the aquatic life present or to be protected and whether the waters have been adversely impacted by factors other than ammonia. The Commission may consider a standard higher than 0.08 mg/l un-ionized ammonia where a higher risk of sublethal effects is justified by habitat limitations or other water quality factors. Where a site-specific study has been conducted, the Commission may apply appropriate alternative chronic standards in accordance with section 31.7(1)(b)(iii). Acute standards for cold and warm water class 2 segments generally shall be established at the respective levels listed in table II for class 1 segments, except where site-specific information submitted justifies an alternative acute standard.

(2) To be applied at the point of water supply intake.

(3) In order to provide a reasonable margin of safety to allow for unusual situations such as extremely high water ingestion or nitrite formation in slurries, the NO₃-N plus NO₂-N content in drinking waters for livestock and poultry should be limited to 100ppm or less, and the NO₂-N content alone be limited to 10ppm or less.

(4) $FT = 10^{\frac{0.03(20-TCAP)}{1}}$;
Where TCAP is $\leq T \leq 30$

$$FT = 10^{\frac{0.03(20-T)}{1}};$$

Where 0 is $\leq T \leq TCAP$

TCAP = 20° C cold water aquatic life species present

TCAP = 25° C cold water aquatic life species absent

FPH = 1; Where 8 < pH 9

$$FPH = \frac{1 + 10^{(7.4-pH)}}{1.25}; \quad \text{Where } 6.5 \leq pH \leq 8$$

FPH means the acute pH adjustment factor, defined by the above formulas.

FT Means the acute temperature adjustment factor, defined by the above formulas.

T means temperature measured in degrees Celsius.

TCAP means temperature CAP; the maximum temperature which affects the toxicity of ammonia to salmonid and non-salmonid fish groups,

NOTE: If the calculated acute value is less than the chronic value, then the chronic value shall be used as the acute standard.

(5) Salmonids and other sensitive fish species present:

Acute= $0.10 (0.59 * [\text{Cl}^-] + 3.90)$ mg/l NO₂-N
 Chronic= $0.10 (0.29 * [\text{Cl}^-] + 0.53)$ mg/l NO₂-N
 (upper limit for Cl⁻ =40 mg/l)

Salmonids and other sensitive fish species absent:

Acute= $0.20 (2.00 * [\text{Cl}^-] + 0.73)$ mg/l NO₂-N
 Chronic= $0.10 (2.00 * [\text{Cl}^-] + 0.73)$ mg/l NO₂-N
 [Cl⁻] = Chloride ion concentration
 (upper limit for Cl⁻ =22 mg/l)

- (6) A combined total of nitrite and nitrate at the point of intake to the domestic water supply shall not exceed 10 mg/l.
- (7) Asbestos standard applies to fibers 10 micrometers or longer.

TABLE III

(Concentration in ug/l)

METAL ⁽¹⁾	AQUATIC LIFE ^{(1)(3)(4)(J)}		AGRI- CULTURE ⁽²⁾	DRINKING WATER- SUPPLY ⁽²⁾	WATER + FISH ⁽⁷⁾	FISH INGESTION ⁽¹⁰⁾
	ACUTE	CHRONIC				
Aluminum	750	87			---	---
Antimony						
Arsenic	340	150	100 ^(A) (30-day)	6.0 (30-day) 50 ^(E) (1-day)	6.0 0.018	4,300 0.14
Barium				1,000 ^(E) (1-day) 490 (30-day)	---	---
Beryllium			100 ^(A,B) (30-day)	4.0 (30-day)	---	---
Cadmium	1.13677-[(ln hardness)* {0.04184}]*e ^{(1.128[ln(hardness)]- 3.6667)} (Trout)=1.13677-[(ln hardness)*(0.04184)]* e ^{(1.128[ln(hardness)]-3.828)}	1.10167-[(ln hardness)* (0.04184)]* e ^{(0.7852[ln(hardness)]-2.715)}	10 ^(B) (30-day)	5.0 ^(E) (1-day)	---	---
Chromium III ⁽⁵⁾	e ^{(0.819[ln(hardness)]+2.5736)}	e ^{(0.819[ln(hardness)]+0.5340)}	100 ^(B) (30-day)	50 ^(E) (1-day)	---	---
Chromium VI ⁽⁵⁾	16	11	100 ^(B) (30-day)	50 ^(E) (1-day)	100(30-day)	---
Copper	e ^{(0.9422[ln(hardness)]-1.7408)}	e ^{(0.8545[ln(hardness)]-1.7428)}	200 ^(B)	1,000 ^(F) (30-day)	---	---
Iron		1,000(tot.rec.) ^(A,C)		300(dis) ^(F) (30-day)	---	---

(continued on next page)

TABLE III
(Concentration in ug/l)

METAL ⁽¹⁾	CHRONIC	AGRI- CULTURE ⁽²⁾	DRINKING WATER- SUPPLY ⁽²⁾	WATER + FISH ⁽⁷⁾	FISH INGESTION ⁽¹⁰⁾
Lead	$1.46203 - \{(\ln \text{hardness})^* e^{(0.145712)}\} * e^{(1.273[\ln(\text{hardness})] - 1.46)}$	100 ^(b) (30-day)	50 ^(e) (1-day)	—	—
Manganese	$e^{(0.3331[\ln(\text{hardness}) + 6.4676])} * e^{(1.273[\ln(\text{hardness})] - 4.705)}$	200 ^(b) (30-day)	50 ^{(c)(e)} (30-day)	—	—
Mercury	0.77 RV(fish) ⁽⁶⁾ = 0.01 Total	—	2.0 ^(e) (1-day)	—	—
Nickel	—	200 ^(b) (30-day)	100 ^(e) (30-day)	—	4,600
Selenium ⁹	4.6	20 ^{(b)(c)} (30-day)	50 ^(e) (30-day)	—	—
Silver	(Trout) = $e^{(1.72[\ln(\text{hardness}) - 10.51])}$	—	100 ^(e) (1-day)	—	—
Thallium ^a	15 ^(c)	—	0.5 (30-day)	0.5	6.3
Uranium	$e^{(1.1021[\ln(\text{hardness}) + 2.7088])} * e^{(1.1021[\ln(\text{hardness}) + 2.2382])}$	—	—	—	—
Zinc	0.8669	2000 ^(b) (30-day)	5,000 ^(e) (30-day)	—	—

NOTE: Capital letters in parentheses refer to references listed in section 31.16(3); Numbers in parentheses refer to Table III footnotes.

TABLE III
(Concentration in ug/l)

METAL ⁽¹⁾	AQUATIC LIFE ^{(1)(3)(4)(J)}		AGRI- CULTURE ⁽²⁾	DRINKING WATER- SUPPLY ⁽²⁾	WATER + FISH ⁽⁷⁾	FISH INGESTION ⁽¹⁰⁾
	ACUTE	CHRONIC				
Lead	$1.46203 - \{(\ln \text{hardness})^* \}$ $\{0.145712\}^* e^{(1.273[\ln(\text{hardness})] - 1.46)}$	$1.46203 - \{(\ln \text{hardness})^* \}$ $\{0.145712\}^* e^{(1.273[\ln(\text{hardness})] - 4.706)}$	100 ^(B) (30-day)	50 ^(E) (1-day)	—	—
Manganese	α $e^{(0.3331[\ln(\text{hardness})] + 6.4676)}$	$e^{(0.3331[\ln(\text{hardness})] + 5.8743)}$	200 ^(B) (30-day)	50(dis) ^(F) (30-day)	—	—
Mercury	1.4	0.77 FRV(fish) ⁽⁶⁾ = 0.01 (Total)		2.0 ^(E) (1-day)	—	—
Nickel	$e^{(0.846[\ln(\text{hardness})] + 0.0584)}$	$e^{(0.846[\ln(\text{hardness})] + 0.0561)}$	200 ^(B) (30-day)	100 ^(E) (30-day)	—	4,600
Selenium ⁹	18.4	4.6	20 ^(B,D) (30-day)	50 ^(E) (30-day)	—	—
Silver	$\frac{1}{2}e^{(1.72[\ln(\text{hardness})] - 6.52)}$	$e^{(1.72[\ln(\text{hardness})] - 9.06)}$ (Trout) = $e^{(1.72[\ln(\text{hardness})] - 10.51)}$		100 ^(F) (1-day)	—	—
Thallium		15 ^(C)		0.5 (30-day)	0.5	6.3
Uranium	$e^{(1.102[\ln(\text{hardness})] + 2.7088)}$	$e^{(1.102[\ln(\text{hardness})] + 2.2382)}$			—	—
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.8618)}$	$e^{(0.8473[\ln(\text{hardness})] + 0.8669)}$	2000 ^(B) (30-day)	5,000 ^(F) (30-day)	—	—

NOTE: Capital letters in parentheses refer to references listed in section 31.16(3);
Numbers in parentheses refer to Table III footnotes.

TABLE III - FOOTNOTES

- (1) Metals for aquatic life use are stated as dissolved unless otherwise specified.

Where the hardness-based equations in Table III are applied as “table value” water quality standards for individual water segments, those equations define the applicable numerical standards. As an aid to persons using this regulation, Table IV provides illustrative examples of approximate metals values associated with a range of hardness levels. This table is provided for informational purposes only.

- (2) Metals for agricultural and domestic uses are stated as total recoverable unless otherwise specified.

- (3) Hardness values to be used in equations are in mg/l as calcium carbonate and shall be no greater than 400 mg/l. The hardness values used in calculating the appropriate metal standard should be based on the lower 95 per cent confidence limit of the mean hardness value at the periodic low flow criteria as determined from a regression analysis of site-specific data. Where insufficient site-specific data exists to define the mean hardness value at the periodic low flow criteria, representative regional data shall be used to perform the regression analysis. Where a regression analysis is not appropriate, a site-specific method should be used. In calculating a hardness value, regression analyses should not be extrapolated past the point that data exist.

- (4) Both acute and chronic numbers adopted as stream standards are levels not to be exceeded more than once every three years on the average.

- (5) Unless the stability of the chromium valence state in receiving waters can be clearly demonstrated, the standard for chromium should be in terms of chromium VI. In no case can the sum of the instream levels of Hexavalent and Trivalent Chromium exceed the water supply standard of 50ug/l total chromium in those waters classified for domestic water use.

- (6) FRV means Final Residue Value and should be expressed as “Total” because many forms of mercury are readily converted to toxic forms under natural conditions. The FRV value of 0.01 ug/liter is the maximum allowed concentration of total mercury in the water that will present bioconcentration or bioaccumulation of methylmercury in edible fish tissue at the U.S. Food and Drug Administration’s (FDA) action level of 1 ppm. The FDA action level is intended to protect the average consumer of commercial fish; it is not stratified for sensitive populations who may regularly eat fish.

A 1990 health risk assessment conducted by the Colorado Department of Public Health and Environment indicates that when sensitive subpopulations are considered, methylmercury levels, in sport-caught fish as much as one-fifth lower (0.2 ppm) than the FDA level may pose a health risk.

In waters supporting populations of fish or shellfish with a potential for human consumption, the Commission can adopt the FRV as the stream standard to be applied as a 30-day average. Alternatively, the Commission can adopt site-specific ambient based standards for mercury in accordance with section 31.7(1)(b)(ii) and

(iii). When this option is selected by a proponent for a particular segment, information must be presented that (1) ambient water concentrations of total mercury are detectable and exceed the FRV, (2) that there are detectable levels of mercury in the proponent's discharge and that are contributing to the ambient levels and (3) that concentrations of methylmercury in the fish exposed to these ambient levels do not exceed the maximum levels suggested in the CDH Health Advisory for sensitive populations of humans. Alternatively or in addition the proponent may submit information showing that human consumption of fish from the particular segment is not occurring at a level which poses a risk to the general population and/or sensitive populations.

- (7) Applicable to all Class 1 aquatic life segments which also have a water supply classification or Class 2 aquatic life segments which also have a water supply classification designated by the Commission after rulemaking hearing. These Class 2 segments will generally be those where fish of a catchable size and which are normally consumed are present, and where there is evidence that fishing takes place on a recurring basis. The Commission may also consider additional evidence that may be relevant to a determination whether the conditions applicable to a particular segment are similar enough to the assumptions underlying the water plus fish ingestion criteria to warrant the adoption of water plus fish ingestion standards for the segment in question.
- (8) The use of 0.1 micron pore size filtration for determining dissolved iron is allowed as an option in assessing compliance with the drinking water standard.
- (9) Selenium is a bioaccumulative metal and subject to a range of toxicity values depending upon numerous site-specific variables.
- (10) Applicable to the following segments which do not have a water supply classification: all Class 1 aquatic life segments or Class 2 aquatic life segments designated by the Commission after rulemaking hearing. These class 2 segments will generally be those where fish of a catchable size and which are normally consumed are present, and where there is evidence that fishing takes place on a recurring basis. The Commission may also consider additional evidence that may be relevant to a determination whether the conditions applicable to a particular segment are similar enough to the assumptions underlying the fish ingestion criteria to warrant the adoption of fish ingestion standards for the segment in question.

Table IV Table Value Standards for Selected Hardnesses
(concentration in ug/L, dissolved)

		Mean Hardness in mg/L calcium carbonate (concentration in ug/L, dissolved)									
		25	50	75	100	150	200	250	300	350	400
Cadmium	Acute trout	0.82	1.75	2.71	3.70	5.74	7.84	9.99	12.16	14.37	16.60
	Acute	0.95	2.01	3.12	4.26	6.62	9.03	11.50	14.01	16.55	19.12
	Chronic	0.80	1.34	1.81	2.24	3.02	3.73	4.40	5.03	5.64	6.22
Chromium III	Acute	183	323	450	570	794	1005	1207	1401	1590	1773
	Chronic	24	42	59	74	103	131	157	182	207	231
Copper	Acute	3.64	6.99	10.25	13.44	19.69	25.82	31.87	37.84	43.75	49.62
	Chronic	2.74	4.95	7.00	8.96	12.66	16.19	19.60	22.90	26.12	29.28
Lead	Acute	13.88	30.14	47.15	64.58	100.13	136.14	172.34	208.58	244.77	280.85
	Chronic	0.54	1.17	1.84	2.52	3.90	5.31	6.72	8.13	9.54	10.94
Manganese	Acute	1881	2370	2713	2986	3417	3761	4051	4305	4532	4738
	Chronic	1040	1309	1499	1650	1888	2078	2238	2379	2504	2618
Nickel	Acute	145	260	367	468	660	842	1017	1186	1351	1513
	Chronic	16	29	41	52	73	94	113	132	151	168
Silver	Acute	0.19	0.62	1.24	2.03	4.08	6.69	9.81	13.43	17.51	22.02
	Chronic trout	0.01	0.02	0.05	0.08	0.15	0.25	0.36	0.50	0.65	0.81
	Chronic	0.03	0.10	0.20	0.32	0.64	1.05	1.55	2.12	2.76	3.47
Uranium	Acute	521	1119	1750	2402	3756	5157	6595	8062	9555	11070
	Chronic	326	699	1093	1501	2346	3221	4119	5036	5968	6915
Zinc	Acute	36.20	65.13	91.84	117.19	165.23	210.83	254.71	297.26	338.74	379.32
	Chronic	36.50	65.66	92.58	118.14	166.57	212.55	256.78	299.68	341.49	382.40

31.17 **Reserved.**

31.18 **Reserved.**

31.19 **Reserved.**

31.34 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE; JULY, 2000 RULEMAKING HEARING

The provisions of 25-8-202(1)(a), (b) and (2); 25-8-203; 25-8-204; 25-8-209 and 25-8-402 C.R.S. provide the specific statutory authority for adoption of these regulatory amendments. The Commission also adopted, in compliance with 24-4-103(4), C.R.S., the following statement of basis and purpose.

Basis and Purpose:

I. Climax Molybdenum Company Proposal

The current Colorado manganese table value was adopted in 1997. It was based on data available at that time that demonstrated the mitigating effect of water hardness on manganese toxicity to a variety of aquatic species, including brook and brown trout. Subsequent to the adoption of the hardness-based table value by the Commission, additional acute and chronic toxicity tests were conducted by the Division of Wildlife (DOW) on rainbow trout. Inclusion of the rainbow trout data results in a more accurate aquatic life manganese table value for Colorado.

The Climax Molybdenum Company (CMC) proposal was developed using EPA's *Guidelines for the Derivation of Ambient Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*. EPA recommends the use of regression analysis in evaluating concentration-effect relationships for toxicity data to be used in criteria derivation. In EPA's most recent ambient water quality criteria (1999 revision for ammonia) it recommends the use of a 20 percent effect concentration (EC 20) as the appropriate endpoint for evaluating chronic toxicity. This was the approach originally proposed by CMC. The DOW expressed concern that the result of this methodology would not be protective enough for Colorado. The DOW recommended that a more restrictive 10 percent effect concentration be used. CMC agreed to revise its proposal to accommodate this concern but noted that this may require the consideration of site-specific manganese standards in one case. The Commission adopted the modified proposal.

II. Farmers Reservoir and Irrigation Company Proposal

The Farmers Reservoir and Irrigation Company (FRICO) advanced two alternative proposals for consideration in this rulemaking hearing. The first alternative would have added a footnote to section 31.16(1), addressing the relationship of table value criteria to site-specific standards. The second alternative would have added new table value criteria for the agriculture classification for fecal coliform, nitrate and phosphorus. In its prehearing statement, FRICO withdrew the proposal for the adoption of nitrogen and phosphorus standards to protect agricultural canals and reservoirs from eutrophication, in view of EPA's current effort to develop nutrient criteria.

Based upon the evidence submitted in this rulemaking, the Commission has decided not to adopt either proposal advanced by FRICO.

With respect to the proposed footnote for section 31.16(1), the proposed first sentence appears to be a restatement of language in section 31.7 of the regulation, while the second sentence appears to be inconsistent with language in section 31.7. The Commission has determined that the proposed footnote is not necessary or appropriate at this time.

The Commission also has determined that the addition of table values for the agriculture use is not necessary or appropriate at this time, particularly where the function of such table values would be only to protect a limited subclass of that use. The Commission does not believe that the evidence regarding potential impacts on crops from nitrate levels above 5.0 mg/l is strong enough to warrant inclusion of a new table value. Moreover, the existing provisions of the Basic Standards, including section 31.13(3) and section 31.7, provide authority for the Commission to adopt site-specific standards to protect sensitive crops should that be determined necessary and appropriate in particular circumstances,

The Commission also considered the potential risk to agricultural workers of fecal coliform in irrigation water. The Commission has concluded that the evidence available at this time does not indicate that agricultural workers are faced with a risk greater than that associated with a recreation class 2 classification. Since all surface waters are classified either class 1 or class 2 recreation, the Commission has determined that the effect of such classifications serves to protect agricultural workers and that consequently there is no need for a separate fecal coliform table value for the agriculture.

The Commission received conflicting evidence in this rulemaking regarding the potential economic costs and benefits of compliance with water quality standards that might result from the implementation of the proposed new Basic Standards provisions. In view of the lack of an adequate demonstration that the proposed changes are necessary or appropriate to protect agricultural uses, as described above, the Commission has concluded that the benefits of adopting such changes would not bear a reasonable relationship to the potential costs of compliance with resulting requirements.

III. City of Thornton Proposal

The City of Thornton proposed that the Commission adopt a new “wastewater treatment plant effluent-dominated” sub-classification under the water supply classification. Thornton also proposed that the Commission adopt numerical table values for fecal coliform, nitrate, phosphorus and total organic carbon (TOC) that would apply to this new sub-classification. Thornton’s prehearing statement dropped the proposal for a fecal coliform table value.

Based upon the evidence submitted in this rulemaking, the Commission has decided not to adopt the Thornton proposal.

The Commission does not believe that the evidence submitted demonstrated the need for a separate water supply sub-classification at this time. From the available information, it does not appear that the conditions proposed by Thornton in which the new sub-classification would apply occur frequently enough to warrant the creation of an entire sub-classification and associated table values. Moreover, the existing provisions of the Basic Standards, including section 31.13(3) and section 31.7, provide authority for the Commission to adopt site-specific standards to provide additional protection for specific water supplies, should that be determined necessary and appropriate in particular circumstances.

The Commission also does not believe that the evidence submitted supports the adoption of the table values proposed by Thornton. With respect to nitrate, Thornton provided no convincing

evidence that water with nitrate levels between 5 mg/l (Thornton's proposed table value) and 10 mg/l (the existing water supply table value) poses a significant public health risk. Moreover, there was no evidence provided that a population being served by a water source that is "wastewater treatment plant effluent-dominated" is more susceptible to nitrate than the general public. With respect to phosphorus, the table value proposed by Thornton is based on limited site-specific experience and does not warrant the adoption of a statewide table value.

The Commission believes that the potential public health issues associated with TOC should be investigated further. However, the evidence submitted in this hearing does not warrant the adoption of the proposed TOC table value at this time. The evidence does not demonstrate that TOC present in effluent poses a greater risk than TOC from other sources. Moreover, Thornton has not demonstrated that its proposed TOC limit of 2 mg/l above background is necessary to avoid interference with its treatment processes. The potential usefulness of TOC as an indicator for the presence of organic pollutants is worthy of further examination; however, the Commission has concluded that the existing science does not support Thornton's position on this issue.

The Commission received conflicting evidence in this rulemaking regarding the potential economic costs and benefits of compliance with water quality standards that might result from the implementation of the proposed new Basic Standards provisions. In view of the lack of an adequate demonstration that the proposed changes are necessary or appropriate to protect water supply uses, as described above, the Commission has concluded that the benefits of adopting such changes would not bear a reasonable relationship to the potential costs of compliance with resulting requirements.

IV. Water Quality Control Division Proposals

A. Overview

This rulemaking hearing addressed a number of potential revisions to this regulation that were identified in a January, 2000 triennial review informational hearing. Many of the revisions proposed for this rulemaking and ultimately adopted by the Commission grew out of the efforts of the Colorado Water Quality Forum's Basic Standards Work Group, which provided important input to the Water Quality Control Division as it developed its proposals for this rulemaking. Each of the major revisions adopted by the Commission is addressed below.

B. Site-specific Narrative Standard Option (section 31.7(1))

Over the last several years, the Commission has had several discussions regarding how best to use the water quality standards system to encourage improvement – or not discourage such improvement – for waters impacted by historical mining activities. The Commission has felt that neither of the primary options set forth in the Basic Standards – table value standards or ambient quality-based standards – are the best possible fit for many of these situations. To provide additional options, the Commission adopted language in a new subsection (c)(ii) of section 31.7(1). This new subsection explicitly provides that a site-specific narrative standard may be adopted on a site-specific basis to address waters impacted by historical mining activities where improvement is believed to be attainable. The new provision would include numerical temporary modifications based on existing ambient quality.

This approach could be applied where a use attainability analysis has not yet been conducted, but the Division or other interested parties intend to conduct such an analysis. It would provide that the underlying standards for a segment would be either the results of such an analysis if completed and approved by the Commission, or – if a use attainability analysis is not completed by a specified date – table value standards. This option would provide an incentive for timely completion of a use attainability analysis, while assuring that protective standards will be in place if such an analysis is not completed. An appropriate date will be identified when a narrative standard is adopted for a particular segment, based upon the amount of time needed to complete a site-specific use attainability analysis.

The Commission is aware of the fact that situations may exist where a use attainability analysis for such impacted waters has been completed, and though feasible improvement measures have been identified, uncertainty remains regarding the chemical, biological, and/or physical conditions that will be achieved once those measures have been implemented. Though the Commission considered the adoption of a narrative standard option which would have equated the standard with that concentration or condition realized after the improvement measures were complete, it decided that this concept was adequately addressed within the state's temporary modification provisions, with specific reference to the newly adopted language found in section 31.7(3)(a)(iii). That section addresses situations where significant uncertainty exists. In other words, a temporary modification could be utilized until such time as the results achieved from the implementation of the improvement measures provide a clear indication of the appropriate long-term standard.

The Commission believes that this site-specific narrative standard option should make the water quality standards system more consistent with efforts to remediate state waters degraded by historical mining activities. The new language is specific to waters impacted by historical mining activities because this is the type of situation that has presented a concern regarding the restrictions of the previous options for water quality standards. Other instances where current impaired water quality exists, such as the segments listed on the section 303(d) list, may bring into play a variety of considerations that differ from the unique circumstances associated with waters impacted by historical mining activities that the Commission has determined warrant the new site-specific narrative standard option. If it is determined that other categories of circumstances warrant a similar site-specific narrative standard option, revised or additional provisions can be considered in future reviews of this regulation.

In addition to the language in new subsection 31.7(c)(ii) regarding historical mining sites, the Commission has added language in a new subsection 31.7(c)(i), clarifying the Commission's more general authority to adopt site-specific narrative standards in appropriate circumstances. A variety of site-specific narrative standards have previously been adopted by the Commission where warranted by specific circumstances. It is appropriate for the Basic Standards to recognize this option.

C. Temporary Modifications (section 31.7(3))

The traditional situation for adopting a temporary modification has been where an underlying numerical water quality standard currently is not being met, but it is believed that the conditions causing the exceedance can be corrected within a 20-year period so that the underlying standard that is protective of the use will be attained. However, over time the Commission has used temporary modifications as a helpful regulatory tool in circumstances that go somewhat beyond this

original specific situation. In particular, temporary modifications have been adopted in certain circumstances where there is uncertainty as to whether existing water quality is caused by natural or irreversible conditions, or where there is uncertainty about the level of water quality needed to protect the classified uses of a water segment. In this rulemaking, the Commission adopted revisions to section 31.7(3) to explicitly provide that “significant uncertainty regarding the appropriate long-term underlying standard” is a basis for establishing a temporary modification.

Previous language in section 31.7(3)(b) and section 31.14(3) provided that, whenever a temporary modification has been adopted, discharge permits and other applicable control requirements should include provisions aimed at eliminating the need for the temporary modification. In this rulemaking, the Commission adopted revisions to these provisions to recognize that in instances where a temporary modification is adopted based on uncertainty as to the appropriate underlying standard, it may not be appropriate to expect control actions aimed at achieving the underlying standard until the uncertainty is resolved.

D. Antidegradation Provisions (section 31.8(3))

In this rulemaking, the Commission adopted a number of revisions to the Antidegradation Review Process provisions of section 31.8(3). Several changes have been adopted in the “Significance Determination” provisions in subsection 31.8(3)(c). This subsection has provided that an activity will not be considered to result in “significant degradation” if any of four tests are met. If it is determined that an activity would not result in significant degradation, then no further antidegradation review is required. The Commission restructured these significance tests. The test based on 10 percent of the existing load has been revised to apply specifically to bioaccumulative toxic pollutants, since this is the major category of pollutants for which “load”, rather than merely “concentration”, plays a key role. The Commission has selected a bioaccumulation factor (BAF) of 1000 as the threshold above which this test would apply. By placing an “and” at the end of this revised subsection, this loading test is required to be met whenever bioaccumulative toxic pollutants are present in order to determine that a new or increased loading is not significant.

The remaining significance tests would now apply in the case of new or increased loadings of all pollutants. In order to assure that successive new loadings to a segment do not result in an impact that is cumulatively significant without an antidegradation review occurring, the concentration-based “15 percent of the available increment” test has been modified. The revised language provides that where the cumulative impact of discharges would increase the low flow pollutant concentration by more than 15 percent, any new or increased loading would not be considered insignificant based on this test.

The Commission has added language to the regulation specifying that the load and concentration-based significance tests apply to “the portion of the segment impacted by the discharge”. The Commission recognizes a need to further define this term as utilized in the new regulatory language. It has been included, in part, to address concerns over future loading to those segments which currently include in their description “all tributaries thereto”. The Commission directs the Division to work with the regulated community in an effort to further define this concept as a part of the work group process established to develop a new antidegradation guidance document.

The Commission believes that these significance tests warrant additional consideration in the future. In particular, a question has been raised whether the presence of “100 to 1” dilution alone

should result in a conclusion that a new or increased loading is not significant, if the concentration-based increment is exceeded. Secondly, additional consideration should be given to whether there are pollutants other than bioaccumulative toxics for which cumulative loads are an important consideration, even when concentration thresholds are not exceeded. The Commission requests that the Division and other interested persons explore these issues further prior to the next triennial review and bring a recommendation back to the Commission at that time as to what, if any, additional revisions to the regulation should be considered to address these concerns.

The Commission also adopted additional language with respect to the “temporary or short term changes” significance test, to assure that this “off-ramp” is not applied where the long-term operation of a regulated activity will result in an adverse change in water quality. Any such impacts should not be considered temporary or short term.

The Commission added a new subsection 31.8(3)(g), entitled “Protection of Existing Uses”. This new subsection merely places in the regulation a provision previously contained in Commission Policy 88-1, providing that a rulemaking hearing will be held to consider adoption of an additional water quality classification for a water segment if it is determined during an antidegradation review that an existing use of the segment has not been classified. This policy was originally adopted in response to a concern raised by EPA regarding the antidegradation provisions adopted by the Commission in 1988. The Commission determined that it would reduce the confusion that has existed regarding the scope of this policy to incorporate this provision into the regulation, eliminating the need for a separate policy. Therefore, by this action the Commission also is repealing Policy 88-1 as a separate policy document.

The Commission revised the references to “activity” throughout this section to refer to “regulated activity”, for consistency with the terminology used in subsection 31.8(3)(a). In addition, a reference in this subsection to “control regulations existing as of April 30, 1993” was deleted since it appears that this language is no longer necessary.

E. Statewide Organic Chemical Standards (section 31.1 I(3) Table)

An extensive list of statewide numerical standards are established in the table entitled “Basic Standards for Organic Chemicals”, which is contained in section 31.1 I(3) of the regulation. Two specific issues regarding these standards were addressed in this rulemaking. First, many of the standards are based upon EPA-established drinking water standards, under the federal Safe Drinking Water Act, or water quality criteria developed pursuant to section 304(a) of the federal Clean Water Act. Since these standards and criteria are modified from time to time, it is necessary to review the existing Colorado standards in comparison to the latest available information. As a result of this review, the Commission adopted several revisions to the standards to conform with the latest available information as to protective levels for the various chemicals.

Second, the Commission modified the human health-based criteria set forth in this table to refine how these criteria apply to individual water segments. Specifically, the Commission has established three human health-based standards columns (water supply only, fish consumption only, and water + fish consumption) in the table. The standards in these three columns will apply to individual water segments based on whether (a) a water supply classification, (b) a class 1 aquatic life or class 2 with recurring fishing, or (c) both of these classifications/circumstances is present, respectively. A similar change has been made to Table III. The Commission believes that these

revisions result in a system that provides more appropriate human health-based water quality standards for individual circumstances, minimizing the potential for under-protection or over-protection.

In comments submitted for this rulemaking, EPA expressed concern that Colorado's proposed standards for certain "Group C Chemicals" are not adequately protective since they are not based on the potential carcinogenicity of these chemicals. The chemicals in Group C have been identified by EPA as "possible human carcinogens" due to the limited nature of the data regarding carcinogenicity. The Commission's Policy 96-2, regarding Human Health-based Water Quality Criteria and Standards, sets forth a policy approach not to base standards for Group C chemicals on carcinogenicity. The Commission has chosen to continue to apply its established policy approach in this hearing. EPA has recognized that it is the prerogative of states to choose an appropriate level of risk in setting water quality standards. This action by the Commission is a determination that the risks of carcinogenicity of Group C chemicals do not warrant standards based on carcinogenicity at this time. If EPA decides that the evidence of carcinogenicity for the chemicals in question warrants re-classifying them as Group B "probable human carcinogens", then Colorado's standards will be revised accordingly. Until then, or until the Commission should decide to modify its current standard-setting policy for this category of chemicals, the action taken here is an appropriate state consideration of risk levels in adopting water quality standards.

F. Recreation Classifications and Standards (section 31.13(l)(a) and Table I)

In this rulemaking the Commission adopted revisions to the provisions in subsection 31.13(l)(a) regarding recreation use classifications and to the Table I water quality criteria for recreation uses. Several revisions were adopted to the provisions regarding recreation classifications. First, the Commission subdivided the class 1 classification into "class 1a" for waters with existing primary contact uses and "class 1b" for potential primary contact uses. As reflected in the associated numerical criteria in Table I, the Commission believes that it is appropriate to provide a higher level of protection for those water segments where primary contact uses are actually occurring.

Reflecting the federal requirement that water quality be protected at a level adequate for "recreation in and on the waters" unless it is demonstrated that such uses are not attainable, the revised regulation provides that the Commission shall assign a class 1a or class 1b classification to all surface waters unless a use attainability analysis demonstrates that there is not a reasonable potential for primary contact uses to occur in the waters in question within the next 20-year period. The Commission is requesting that the Division develop a Recreation Use Attainability Analysis Guidance Document that could be used by any person wishing to conduct such a use attainability analysis. This guidance document should be developed with public input, including a public briefing to the Commission that provides an opportunity for public comment to the Division.

The revised regulation also provides that where no use attainability analysis supporting a class 2 classification has been completed, the new class 1a will be the default classification, unless a reasonable level of inquiry has failed to identify any existing class 1 uses of the water segment. Where such an inquiry fails to identify existing recreation uses, a class 1 b classification will be appropriate. This approach should help assure that primary contact uses are protected. The Commission intends that what constitutes a "reasonable level of inquiry" will be a case-specific determination, which will depend on factors such as the size and location of the segment in question and what is known about the presence or absence of primary contact uses for other,

similar water segments. It generally will be appropriate to direct inquiries to a variety of persons in the area with potential knowledge regarding uses of the water segment, such as to land owners, land management agencies, local governments, recreational user groups, and/or Riverwatch coordinators or other school contacts,

The Commission intends that any revisions of existing recreation classifications and standards to apply the new classifications described above would occur through the normal rulemaking process, which would provide an opportunity for public review of and comment on information supporting any new site-specific classifications and standards. Proposed changes generally are identified in attachments to the rulemaking hearing notice, with any alternative proposals to be considered identified in parties' prehearing statements.

The discussions that led up to this rulemaking hearing included consideration of options that would have included additional subcategories of the recreation use classifications. Although additional subcategories are not being adopted at this time, such options may be considered further in subsequent triennial reviews. The Commission requests that the Division and other interested persons develop additional information regarding the usefulness or appropriateness of such subcategories for consideration in subsequent reviews.

The primary change adopted with respect to the Table I water quality criteria for recreation uses is the addition of *Escherichia coli* (*E. coli*) as a pathogen indicator. Available studies indicate that *E. coli*, which is a subset of fecal coliform, is a better predictor of potential human health impacts from waterborne pathogens. For now, the Commission also has retained fecal coliform table values. The Commission intends that during the next triennium alternative fecal coliform and *E. coli* numerical standards will be adopted for water segments in the individual basins. The Commission wants the public to be aware that it currently anticipates moving to *E. coli* as the sole pathogen indicator in the next triennial review of this regulation. Dual standards are being established in the interim as a transitional step. One reason for adopting this transitional approach is that at present there is uncertainty regarding the acceptability and comparability of several alternative *E. coli* monitoring methods. The Commission is hopeful that much of this uncertainty may be resolved prior to the next triennial review.

As stated in the revised footnote 6 to Table I, so long as dual standards are in place for a water segment, the Commission intends that dischargers will have the option of either parameter being used in establishing effluent limitations in discharge permits. This footnote further clarifies that for the evaluation of ambient water quality data, such as in making section 303(d) listing decisions, in the event of a conflict between fecal coliform and *E. coli* data, the *E. coli* data will govern. The Commission believes that these provisions will help ease the transition from fecal coliform to *E. coli* standards.

The *E. coli* criterion adopted for new recreation class 1a is 126 per 100 milliliters. This level is based on EPA criteria recommendations, which are derived from an anticipated risk level of 8 swimmer illnesses per 1000 swimmers. The class 1 b criterion of 205 per 100 ml is based on a policy decision to accept a higher risk level - 10 illnesses per 1000 swimmers - for this classification, based on the assumption that primary contact uses are not currently likely to be occurring for these water segments, although such uses may be a potential in the future. The *E. coli* criterion for class 2 waters is set at 630 per 100 ml, based on an EPA policy recommendation

that the criteria for secondary recreation uses not be set higher than five times the primary use standard.

During this transition period, the previous class 2 fecal coliform criterion of 2000 per 100 ml is retained. The previous class 1 fecal coliform criterion of 200 per 100 ml is adopted as the value for the new class 1 a. Finally, a fecal coliform level of 325 per 100 ml has been established for the new class 1 b, based upon interpolation between the 200 and 2000 values, to be consistent with the new *E. coli* value for class 1 b.

The revised footnote 6 to Table I clarifies that compliance with fecal coliform and/or *E. coli* standards is to be based upon the geometric mean of representative samples. EPA has recommended that states consider the adoption of single sample maxima for bacteriological indicators, in addition to standards based on geometric means, to provide additional protection of recreation uses. The Commission has declined to adopt such criteria at this time, due in part to uncertainty regarding the significance of and the appropriate response to elevated single sample test results. An important aspect of this concern is the substantial variability that can be common in individual bacteriological samples, because bacteria are not uniformly distributed in water samples, since they behave more like suspended particles, rather than dissolved constituents. Repeat testing on such samples can yield results which vary substantially.

However, the Commission may consider the adoption of single sample maxima or other short-term indicators in the next triennial review. Another approach to short-term indicators that has been suggested would be to provide that no more than "x" percent of samples could exceed a specified level. The Commission requests that the Division and other interested persons develop additional information regarding the usefulness or appropriateness of such short-term bacteriological criteria prior to the next triennial review, including identifying potential criteria values.

The issue of whether and how to account for animal waste in setting recreation standards is a challenging one. Relatively little information is available at present regarding the risks posed by animal sources. Moreover, the range of natural sources – such as waterfowl and terrestrial wildlife – and anthropogenic sources – both urban (pets) and rural (livestock) – present a variety of management challenges with respect to potential options for controlling or mitigating water quality impacts. Therefore, the Commission anticipates that this issue will need to be closely monitored and revisited over the next several years. As a matter of policy, the Commission chose at this time not to include any language in the standard itself – or the accompanying footnote – regarding non-human sources of coliform bacteria.

With respect to non-human sources, the Commission intends that the fecal coliform and *E. coli* standards will be applied in a manner consistent with EPA's current official guidance, which is contained in the Water Quality Standards Handbook, Second Edition, August, 1994, page 2-3.

In adopting these provisions, the Commission recognizes that the state of knowledge regarding the potential risks posed by non-human sources of coliform bacteria is evolving. The EPA criteria generally were developed based upon evidence of risks posed by human sources. However, there have been recent examples of human health impacts resulting from water contamination by at least some non-human sources, and EPA currently is considering substantial changes to its guidance regarding the use of bacterial water quality criteria for the protection of recreational uses. The Commission believes that the approach adopted here is a reasonable policy choice based on

current information. However, the issue of non-human sources will need to be reevaluated in subsequent triennial reviews as additional information becomes available.

Finally, the Commission wishes to emphasize that ingesting water from streams and other surface waterbodies has inherent risks and is not encouraged, but rather should be avoided to the extent possible during all forms of recreation. While the Commission believes that the criteria adopted here provide a reasonable and appropriate level of protection of human health, avoidance of ingestion is always preferable.

G. Ammonia Table Values (Table II)

In December of last year, EPA published its 1999 Update of Ambient Water Quality Criteria for Ammonia. This update is a modification of the 1998 Update of Ambient Water Quality Criteria for Ammonia. Colorado's current table value criteria for ammonia in the Basic Standards were adopted in the late 1980's, following an extensive review of EPA's then-current criteria by a Colorado Panel of scientific experts. The recommendations of this panel were set forth in a draft final report entitled Proposed Nitrogenous Water Quality Standards for the State of Colorado, dated March 12, 1986, prepared for the Water Quality Control Commission by the Nitrogen Cycle Committee of the Basic Standards Review Task Force.

In view of the complex set of issues relating to ammonia criteria and standards, and the need to assess the appropriateness of EPA's revised criteria for conditions in Colorado, the Commission decided not to consider changes to the current Colorado ammonia criteria in this rulemaking hearing. Rather, the Commission believes that it will be important for the Division to work with the regulated community and other interested persons to examine the new EPA criteria and develop recommendations for any revisions to the current Colorado criteria and standards that may be appropriate. In order to provide a meaningful opportunity for such an informal process to occur, the Commission anticipates revisiting the ammonia criteria issue in the next triennial review of the Basic Standards and Methodologies for Surface Water.

H. Standards Based on Secondary Drinking Water Standards (Tables II and III)

Tables II and III of this regulation include table value criteria for a "water supply" use for four parameters (chloride, sulfate, iron and manganese) that are based on "secondary" drinking water standards developed pursuant to the federal Safe Drinking Water Act. These secondary standards are not health-based, but rather are based upon "welfare" impacts such as taste, odor and discoloration of laundry or fixtures. They are established by EPA as goals for public water supplies and are not required to be enforced by states.

Prior to this rulemaking, the Commission generally applied these four table values as numerical standards for all water segments classified for water supply use, except where site-specific information justified a different standard, e.g. based upon higher naturally occurring levels of the parameter in question. For some time, dischargers have expressed concern about the cost of meeting effluent limitations resulting from the sulfate, iron and manganese secondary drinking water standard-based stream standards, since the secondary standards are not enforceable against water suppliers and are not health-based, and since treatment of wastewater to remove these constituents is generally expensive and difficult. (Similar practical concerns do not seem to have arisen with respect to chloride standards.) On the other hand, although the secondary

standards are not enforceable against water suppliers and are not health-based, water suppliers have indicated that due to the needs of their customers it is important to them to minimize these constituents in their source water, and there is a cost to the water suppliers if they need to treat to remove these constituents. Several water suppliers have experienced problems with ambient manganese levels in the past, and have had to add additional treatment steps to remove manganese.

In an effort to balance these considerations, as a result of this rulemaking the Commission is adopting a change to its approach to establishing numerical standards for sulfate, iron and manganese. (No change is being adopted with respect to chloride standards, since it does not appear that there are practical concerns with the current approach to chloride standards.) There are several components to this action:

- Existing numerical standards for all surface water segments that are based on the water supply table values for sulfate, iron and manganese will be deleted in a rulemaking hearing addressing water quality standards for all river basins;
- Existing segment-specific numerical standards for sulfate, iron and manganese that are based on previous site-specific analysis (e.g., identifying higher naturally occurring levels of a constituent) will be retained:
- For segments with a water supply classification that have an actual water supply use (as opposed to a potential use), the Commission is adopting numerical standards based on the less restrictive of (a) existing quality as of January 1, 2000, or (b) the water supply table value criteria for iron, manganese, and sulfate;
- For segments with a water supply classification that do not have an actual water supply use, no numerical standards for sulfate, iron and manganese will be established unless determined to be necessary and appropriate in accordance with section 31.7 as the result of a future site-specific rulemaking;
- For purposes of implementing water supply-based numerical standards for iron, manganese and sulfate into discharge permits, a new provision is added to section 31.14 to direct the Division to give credit in establishing effluent limitations for potentially elevated levels of these constituents in the water entering the wastewater treatment plant or other discharging facility, where the source is ambient surface or ground water tributary to the receiving waters that is no worse than existing quality as of January 1, 2000.

The Commission believes that this set of actions provides the most efficient and reasonable starting point for water supply-based sulfate, iron and manganese standards to provide appropriate protection of actual water supplies against the introduction of new or increased sources of these constituents while also minimizing the risk of costly, unnecessary treatment by point source dischargers. The Commission has essentially “grandfathered” existing levels of these constituents (where they exceed table values) as the numerical standards for segments with an actual water supply use. A proviso has been included to assure that existing contamination levels are not grandfathered if they result from an unauthorized discharge with respect to which the Division has undertaken an enforcement action or if they conflict with remedial action requirements for these constituents established pursuant to any response action under the Comprehensive Environmental

Response Compensation and Liability Act. Of course, the numerical standards being established by these revisions to the Basic Standards could be revised to be more or less stringent in a subsequent site-specific standard-setting hearing if determined appropriate based on the site-specific evidence. In some cases, where iron and manganese levels are elevated due to historic mining activities, use of the new site-specific narrative standard option discussed above may be appropriate.

The Commission intends that, consistent with established practice, the “existing quality” of particular segments for the parameters in question will be determined based upon the 85th percentile of available representative data

At the same time, the Commission has determined that there is no need for statewide water supply-based sulfate, iron and manganese standards for segments with a water supply classification but no actual water supply use – i.e., those segments classified as water supply based on a potential future use. Where there is no actual use in place that could be impacted by a discharge, the Commission does not believe that dischargers should need to treat for these secondary drinking water standard-based stream standards. If an actual use for a water supply-classified segment begins in the future, then the numerical standards being adopted as a result of this rulemaking would apply – i.e., existing quality as of January 1, 2000, or table values, whichever is less restrictive. In such circumstances, the Commission expects that the Division would allow a reasonable compliance schedule in issuing or renewing discharge permits,

The Commission has provided that an “actual use” will be determined based on use of the surface waters from the segment in question or use of hydrologically connected ground water. The Commission intends that an actual use of ground water would receive protection where its quality could be impacted by the quality of the surface water in question. Any situation for which it is determined that there is no reasonable potential for the surface water quality to affect the quality of ground water used as water supply should not be considered to involve “hydrologically connected ground water”.

The Commission recognizes that today’s action could result in numerical standards for sulfate, iron and manganese applying in a segment with a water supply use classification that has an actual water supply use, but where the only water supply intake(s) are located upstream from any point source discharge(s) to that segment. In these circumstances, if it appears that there are no downstream actual water supply uses potentially impacted by the discharge(s), it would be appropriate for the Commission to re-segment the stream in question so that the numerical standards now being established through the Basic Standards apply only upstream of the water supply intake.

The Commission recognizes that it is not possible to anticipate and account for all potential site-specific factual situations in a statewide rulemaking action such as this. Therefore, the Commission has retained the option of adopting site-specific water supply-based numerical standards for sulfate, iron and manganese that may be more or less stringent than those being adopted here wherever determined appropriate in a site-specific rulemaking proceeding. Moreover, the Commission intends to revisit this action in subsequent triennial reviews of the Basic Standards, to determine whether it is working effectively as intended or may need future refinement. If it is determined that this action results in significantly increased costs for water suppliers, especially in

light of significant new Safe Drinking Water Act requirements for additional treatment of public water supplies, the Commission believes that more protective standards should be re-established.

I. Metals Table Values and Standards Issues (Table III)

Two sets of changes are adopted with respect to the metals table values set forth in Table III. First, the Commission has adopted language to clarify use of the hardness-based equations in calculating standards, to provide consistency between current practice, this regulation and EPA guidance. The Commission added language to footnote 3 to Table III to explicitly state the limitations on using the hardness-based metals equations in that table. These equations are to be used with hardness values no greater than 400 mg/l, as calcium carbonate, even if the ambient conditions are greater than this range. The data that were used to derive these equations were generally based on toxicity tests in waters with hardness ranging from 50 mg/l to 200 mg/l. The cap at 400 mg/l hardness limits the extent that the equations are extrapolated beyond the original data where the slope of the LC50's flattens out. The previous practice of using a lower limit of 25 mg/l is inappropriate, since there is no evidence that the toxicity does not continue to increase as hardness decreases below 25 mg/l (i.e., the slope remains constant at low hardness).

Adding this clarification in the Basic Standards does not preclude the use of site-specific studies, such as developing a "water effects ratio" to demonstrate that lower toxicity occurs at higher hardness levels in specific circumstances. The Commission is concerned with the current uncertainty regarding toxicity at higher hardness levels that results from available EPA criteria. The Commission encourages EPA to undertake additional studies of the metals in question at higher hardness levels, to reduce this uncertainty and improve the accuracy of the criteria in the future.

Second, the Commission modified the hardness-based table value criteria for several metals to incorporate appropriate "conversion factors". The need for these conversion factors results from the fact that the table value criteria originally were developed based on "total recoverable" metals levels, but are now applied as "dissolved" metals standards. Because the dissolved fraction of a metals sample is a subset of total recoverable metals, application of the conversion factors is necessary to assure that metals standards are not under-protective. The revised criteria should more accurately reflect potential toxicity to aquatic life.

Concern was expressed in the hearing regarding application of the revised selenium table values that result from application of the conversion factors. Where selenium data is available only reported to the nearest whole number, the Commission intends that this be taken into account in assessing compliance with the revised table values.

The Commission also added a new Table IV to the regulation, identifying metals levels associated with a range of hardness values, for those metals with table value criteria in the form of hardness-based equations. The Commission has included language in the introductory portion of section 31.16 to clarify that where the hardness-based equations in Table III are applied as "table value" water quality standards for individual water segments, those equations -- rather than the values set forth in Table IV -- define the applicable numerical standards. The illustrative examples of approximate metals values associated with a range of hardness levels in Table IV are intended solely as an aid to persons using this regulation, for informational purposes only.

J. Housekeeping Issues

The Commission corrected a number of clerical errors that had been identified in this regulation

PARTIES STATUS/MAILING LIST STATUS TO THE RULEMAKING HEARING

1. Climax Molybdenum Company
2. The City of Broomfield
3. Centennial Water and Sanitation District
4. Kodak Colorado Division
5. Metro Wastewater Reclamation District
6. The City of Fort Collins
7. The Farmers Reservoir and Irrigation Company
8. The City of Thornton
9. The City of Westminster
10. The Board of Water Works of Pueblo, CO
11. The Chatfield Watershed Authority
12. Plum Creek Wastewater Authority
13. The City of Pueblo
14. Colorado Division of Wildlife
15. The City and County of Denver, Board of Water Commissioners
16. Colorado River Water Conservation District
17. North Front Range Water Quality Planning Association
18. The Colorado Wastewater Utilities Council
19. South Adams County Water & Sanitation District
20. The Cottonwood Water & Sanitation District
21. The Inverness Water & Sanitation District
22. The City of Arvada
23. Northwest Colorado Council of Governments
24. The Supervisory Committee of the Littleton/Englewood Wastewater Treatment Plant
25. The City of Aurora
26. The Town of Olathe
27. The Town of Hotchkiss
28. The Town of Ridgway
29. The North Fork Conservancy District
30. Leroux Creek Water Users Association
31. The Upper Clear Creek Watershed Association
32. Grand County Water & Sanitation Districts
33. The City of Golden
34. New Consolidated Lower Boulder Reservoir & Ditch Company and New Coal Ridge Ditch Company
35. The Pittsburg & Midway Coal Mining Co.
36. The Coors Brewing Company
37. The Colorado Association of Commerce and Industry
38. Sunnyside Gold Corporation
39. The City of Black Hawk
40. Boxelder Sanitation District
41. Todd Creek Metropolitan District No. 1

- 42. The City of Colorado Springs including Colorado Springs Utilities
- 43. The Northern Colorado Water Conservancy District and the Municipal Subdistrict
- 44. The Denver Southeast Suburban Water & Sanitation District d.b.a. Pinery Water & Wastewater District
- 45. The Town of Silverton
- 42. Colorado Petroleum Association
- 43. Lockheed Martin Astronautics
- 44. Viacom International Inc.
- 45. Homestake Mining Company
- 46. The Cherry Creek Basin Water Quality Authority
- 47. The United States Department of Energy, Rocky Flats Field Office
- 48. The City of Lakewood
- 49. The Town of Lochbuie
- 50. Denver Regional Council of Governments
- 51. The City & County of Denver
- 55. The City of Glendale
- 56. The City of Boulder
- 57. Trout Unlimited
- 58. Bromley Park Metropolitan District 1
- 59. U.S. Environmental Protection Agency, Region VIII
- 60. The Board of County Commissioners of the County of Gunnison, CO
- 61. Arapahoe County Water & Wastewater Authority
- 62. U.S. Fish & Wildlife Service, Colorado Field Office
- 63. Battle Mountain Resources, Inc.
- 64. Colorado Livestock Association

